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The JOURNAL *of the*

AMERICAN INSTITUTE OF REAL ESTATE APPRAISERS

of the National Association of Real Estate Boards

K. Lee Hyder, *Editor-in-Chief*
Harry Grant Atkinson, *Managing Editor*

Volume IV | October, 1936 | Number 4

CONTENTS

Certification of Real Estate Appraisers by Public Authority.....*By David T. Rowlands* 349
Accrued Depreciation.....*By K. Lee Hyder*, M. A. I. 353
The Data Program.....*By Ayers J. du Bois*, M. A. I. 368
The Use of "Standards" in Appraisal Practice.....*By R. M. Fischer* 379
The Land Survey Systems of the United States..*By Ralph V. Field*, M. A. I. 393
The Changing Family.....*By William F. Ogburn* 400
The Relationship Between the Right of Way Agent and the Appraiser.....*By Peter Hanson*, M. A. I. 408
Appraising for Federal Tax Purposes....*By Warren P. Hunnicutt*, M. A. I. 411
Some Principles of Land Utilization.....*By Harry Grant Atkinson* 425
The 1936 Appraisal Courses.....*By George L. Schmutz*, M. A. I. 432
Comment and Discussion.
Babcock—On the Annuity System..... 437
Quintana—On Rationalizing Appraisal Practice..... 437
Kissack—On Price as a Measure of Value..... 439
"The Abundant Life".....*By Woodby X. Pert* 442
What to Read
Land Use and Local Finance.....*By Helen C. Monchow* 443
Review of "Mathematics of Finance"...*By Thurston H. Ross*, M. A. I. 446
Review of "Rational Design".....*By Rowena Bastin Bennett* 447
New Articles..... 448
Officers and Committees..... 450
Roster of Members..... 453
Index to Volume IV..... 458

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Entered as second class matter January 17, 1933, at the post office at Chicago, Illinois, under the act of March 3, 1879. Subscription rates: $5.00 a year; $1.25 a copy. Remittances may be made by personal checks, drafts, post office or express money orders, payable to the American Institute of Real Estate Appraisers, Chicago, Ill. Printed in the United States of America.

"Time Marches On"

So fleet the works of man
Back to the earth again
Ancient and holy things
Fade like a dream.
—Charles Kingsley.

THE opening scenes of a current "movie" depict the World's Fair at Chicago in 1893. "Little Egypt" wriggles again as she must have done in the "gay nineties," and Sandow thrills once more the fair damsels of the period with his rippling muscles and manly beauty. Thus are the scenes of forty years ago reconstructed for the modern generation and the memories of the oldsters reawakened.

But are these memories all that remain to us of that glorious exposition of man's nineteenth century achievements? If they were, perhaps it would still have been worthwhile. But let us look at the historic "Midway" as it exists today. The architectural galaxy of wood and plaster and glittering tinsel is no more, but upon the site has grown one of the greatest institutions of learning in the World—the University of Chicago. The educational plant is of stone and steel—magnificent structures of permanence—and possessed of even greater beauty than those lighter shells of a bygone day.

Two years ago on Chicago's newer lake front, the Century of Progress was entertaining an even greater multitude than did that earlier Fair. Only yesterday we stopped our car on the Outer Drive and strolled around the area. Grass and weeds are growing in the streets that carried the surging crowds of 1933 and 1934. Here and there is a pile of broken brick and twisted wire—an incongruous stretch of hedge that once bordered a gay and festive restaurant—an occasional nondescript cluster of transplanted trees and shrubs that have somehow survived the wrecking operations. Already it requires a mental effort to reconstruct the scenes of two short years ago.

Will the theatregoers of forty years hence laugh at the resurrection of Sally Rand and her "Fan Dance" and smile surreptitiously at the bizarre "moderne" architectural monstrosities of the thirties? Possibly. But without doubt the ideas germinated in the Hall of Science will have long since resulted in the erection of something that is great and permanent.

The American Institute of Real Estate Appraisers was projected with considerable form and ceremony by its parent organization, the National Association of Real Estate Boards, just a few years ago. The *facade* was imposing from the start, but in reality the structure was largely of frame and plaster and wire and paint. But there was a *need* and an *idea* to meet it. The temporary structure was inspirational, and already a monolithic foundation has been laid, upon which will rise with the passing of the years an Institute that shall possess the steel frame work of sound principles, the stone walls of tested practice and technique, and the beauty and dignity of high standards of professional conduct.

Time marches on!

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of the National Association of Real Estate Boards

Volume IV | OCTOBER, 1936 | Number 4

Certification of Real Estate Appraisers By Public Authority

By DAVID T. ROWLANDS

THE experience of mortgage lenders during the depression has focused widespread attention on the unsoundness of much of our appraisal practice. From many quarters demand has come for reform. Interest has been aroused in the need for scientific appraisals. Lenders and borrowers, laymen and experts, alike, point to the difficulties of owners and purchasers of real estate, and in many instances attribute the demoralization of real estate values to unsound financing made possible by convenient or unintelligent appraisals of real estate.

Appraisers themselves have felt the necessity of gaining the respect and confidence of the investor in real estate. There is a general recognition of the fact that appraisal techniques and practices must be improved. Some of the most thoughtful of the practitioners of real estate appraising have exerted considerable energy and intelligent effort to the task of providing standards of practice and have dedicated themselves to improving the facilities which are essential to improved skill in practice.

The inception and development of the American Institute of Real Estate Appraisers attest to the fact that appraisers themselves recognize they have duties to the public which they can discharge fully only when they are thoroughly trained as well as experienced in the problems of appraising real estate.

PROPOSED LEGISLATION

More recently the demand for training and competency of real estate appraisers has expressed itself in the introduction of two bills in the New York State Legislature. By its terms, the Joseph-Pack bill[1] proposed to add a new section to the real property law, thereby requiring appraisers to be licensed by the Department of State.

Toward the end of February a bill[2] was presented whereby provision was made for the licensing of appraisers who can qualify.[3] Those who can qualify will be known as certified real estate appraisers. If adopted, the bill will permit anyone to do appraisal work but will require all who seek the designation of "certified real

(1) N. Y. S. I. 295; A. I. 443.
(2) N. Y. S. I. 1140; A. I. 1321.
(3) The bill also provides that no loaning institution organized under the banking or insurance laws of the State of New York can make mortgage loans on real property unless the property has been appraised by a certified real estate appraiser.

estate appraiser" to meet tests of competency. To qualify, an applicant must prove that he has been actively and continuously engaged in the business of real estate appraising for not less than eight years, although in lieu of three of the eight years he may submit evidence of the completion of a course in real estate or appraising in any approved school or university. The qualifying test may be either written or oral, as the Department of Education may require, and given by a State Board of Examiners, which shall consist of three or more certified real estate appraisers appointed by the Regents.

PUBLIC VS. PROFESSIONAL CONTROL

Whether these bills do or do not pass the Legislature, the question of whether certification by public authorities is or is not the best means of accomplishing improved appraisal practice is an issue which needs careful thought. There are few who will attempt to controvert the implicit position of the protagonists of the bill that improvement in current appraisal practice is urgently needed. Nevertheless, it might properly be mooted whether for the present, or at any time in the future, increased skill and improved standards of practice can be attained more readily and soundly by legal fiat or by professional groups themselves in regularly constituted guilds.

The immediate impulse of appraisers is to oppose such attempts to establish certification by public authority. However, before support for such legislation is given or withheld, professional appraisers owe to themselves, as well as to their clients, mature consideration of the issues involved.

It might properly be questioned whether the nature of the appraisal profession is one in which the adequacy of the applicant's skill can be ascertained. A pertinent inquiry is; Does certification of competency by public authority imply that there is a well-established, accepted, and accessible body of knowledge on which the appraiser can be tested? The nature of the problem with which the appraiser is confronted is one that requires judgment. No thorough student of the problems of real estate appraisal will contend seriously that any formulae yet developed obviate the use of judgment in valuing real estate. Such as are available aim to limit the area in which judgment operates and to standardize judgments where possible. A careful examination of the literature of the field reveals marked bias toward particular methods and very limited factual knowledge.

In view of these facts it may be premature to attempt state certification of appraisers. If public certification of appraisers is tantamount to certifying that such appraisers who qualify have sound and mature judgment of real estate values, this implication is of more than passing moment.

Opposition to certification by public authorities on the grounds that it may be inimical to the interests of appraisers practicing at the present time or that it may be administered with political considerations of primary concern disregards the significant issue presented by bills designed to provide machinery for certifying the abilities of appraisers. Intelligent and conscientious professional appraisers must, in self-protection, find a way of differentiating for the public the skilled and conscientious appraisers from the unskilled and/or unscrupulous appraisers. With the introduction of S. I. 1140 and A. I. 1321, they have the opportunity of determining how the professional development of real estate appraising may best

be advanced. It may be that the purpose implicit in the proposal for certification can be accomplished better by guild effort than by statutory and public administrative authority. Whichever method of attack offers the greatest incentives to sustained and improved professional development should be adopted. In fine, the issue is clear-cut. Professional groups must themselves earn recognition among lenders through the standards of attainment imposed on their members, or public authority will impose standards of practice.

THE NEED FOR INCENTIVES

Some hall-mark that can command general recognition by all persons who deal in real estate, whether for purchase or credit granting, must be developed. The almost primitive state of the literature in the field and the role which judgment must play in sound appraisals make it imperative that we provide incentives for men engaging in appraisal work to strive to enlarge the common knowledge of our problems as well as to equip themselves for the best possible performance of their jobs. Tests of competency by any body, public or private, will undoubtedly lead to training by applicants in preparation for the tests. The question then resolves itself into a determination of whether public or private agencies are better calculated to stimulate applicants to continuous professional development.

The difficulty of arranging definitive tests of competency is as great for either type of agency. The determination of which agency should be relied upon must therefore rest upon which type of agency is best calculated to provide continuous development. While a present need in real estate appraising is the development of techniques by which judgment can be refined, the judgment content inherent in appraising of real estate renders the creation of incentives for continuous development by the individual appraiser a prime requisite. Reliance on public certification to provide the necessary incentives is likely to be disappointing. Is it not likely that certification of appraisers may be an end in itself for appraisers and that appraisers so certified may be left without further incentive to promote their professional growth?

The professional appraisal societies already in existence have done much useful work in providing incentives for continuous professional growth. The "Fellow Appraiser" designation recently authorized by the Society of Residential Appraisers, the standards now required for the "M. A. I." designation in the American Institute of Real Estate Appraisers, and the creation of local chapter groups for the purpose of promoting the training and skill of their members are all calculated to encourage high standards of preparation and attainment before designations are awarded. Both the American Institute of Real Estate Appraisers and the Society of Residential Appraisers are encouraging the continued pursuit of knowledge and are furnishing avenues through which their members are stimulated to continued professional growth.

In their own self-interest these groups must attain standards that will command respect and so have a continuing interest in professional growth of their members. They are without the prestige that comes from public certification. They must earn recognition or they cannot exist permanently. Can such a directing incentive be provided in any program for the certification of appraisers by public authority?

At this stage of development in real estate appraising there is much need for incentives that will encourage appraisers to develop a scientific attitude toward their problems and to train themselves continu-

ously. If the history of public certification in the general field of real estate reveals anything, it indicates that high standards of competency are required rarely. It is a reasonable generalization that license laws have established only minimum controls and in so doing have done little to provide positive incentives for licensees to improve their training.

If the professional societies demonstrate they are incapable of establishing high standards of practice, public certification will be a desirable alternative. If these societies fail to develop sound techniques, certification by public authority will, notwithstanding its inherent weaknesses, be necessary.

PUBLIC CERTIFICATION PREMATURE AT THIS TIME

In conclusion, a well-established, accepted, and accessible body of knowledge dealing with the problems of real estate appraisals has not been developed as yet. Noteworthy contributions are to be found in the excellent pioneer explorative work of Babcock, Kniskern, Pollock, Scholz, Thorson, Zangerle, and others, but general agreement on techniques is still not a reality. Until there is rather general agreement on techniques and a factual basis for a substantial number of elements in the problems encountered by appraisers, it is unwise to resort to certification of appraisers by public authorities.

While certification by guilds and public bodies created by a state is not necessarily incompatible, certification by public authorities is likely to prove satisfactory only after we have a basis for testing reasonably well the appraiser's knowledge of the fundamentals of appraisal problems and his attitude toward his problems. If, as, and when it is wise to give to the appraiser the stamp of approval of some public authority, the guilds will necessarily supplement the work of such agencies. In the meantime, several objectives may well be sought by professional societies.

There is need for determining just what would constitute desirable standards of training for those who will engage in appraising real estate, whether guild or public authority assumes responsibility for certifying the qualifications of appraisers. One of the most useful tasks the professional societies could set for themselves would be to establish clearly defined goals in training appraisers. The summer sessions of the American Institute of Real Estate Appraisers afford good opportunity for clarifying the problems involved in attempting to train appraisers. The experience already acquired at these sessions should give a basis for outlining in a significant way the scope of knowledge and types of training that will best equip men to engage in real estate appraising. A useful service would be given the appraisers generally if they were advised in considerable detail on a program of study which they could pursue independently.

Both professional societies recognize the need for research. Fortunately, there are signs that funds will become increasingly available to explore the problems and develop the body of knowledge in the field. In the absence of funds with which to establish adequate formal research organizations, the possibility of fellowships to develop technical studies offers one approach to promote a better understanding of the problems.

Financial institutions and individual investors have many end results of loans which they have made. With the results at hand, these investors should be encouraged by the professional societies to make analyses of the complete histories of some properties on which they have made loans. Such analyses would be potent factors in educating lenders to the value of services of skilled and conscientious appraisers.

♣ ♣ ♣

Accrued Depreciation

By K. Lee Hyder, M. A. I.

THE questions relating to "depreciation" are primarily of a practical nature to the advanced student of appraisal technique. He is already generally familiar with the basic concepts and the academic treatment of this extremely controversial subject. In fact, in his everyday practice he has been solving the problems by such methods as he has found have produced the most logical and provable results in his value estimates.

This article, therefore, is not designed as a treatise on the entire subject of "depreciation" but is directed rather toward the outlining of the purpose and influence of the estimate of "accrued depreciation" in the appraisal process; it is a discussion of "methods" advanced by various authorities and a development of the estimating procedure in practical appraising.

The Measurement of vs. the Provision for Depreciation

As will be noted in the definitions of terms, there is a basic difference between "Accrued Depreciation" and the "Accruals for Depreciation." In the first term we refer to the degree or amount which a property or an item has lost in value as of a definite date, usually the present. Therefore, it becomes a question of comparison against a known or assumed standard or base. This base is a hypothetically new property or item of the same kind and size or one which would be capable of rendering the most efficient (100 per cent) service for which the item was designed or adapted. There are other standards of comparison, however, against which the property must be applied. Amenities may enter into the question, and the final effort is to estimate the relative desirability of the property from all standpoints with that which might most effectively and desirably replace it today were such procedure feasible and practicable.

In the second term, "Accruals for Depreciation," we refer to the steps which are being or should be taken to protect and return the investment, or provide for the replacement of the property or item at some future date. This provision is to offset accruing depreciation—it compensates for the property value consumed through use in service and is ordinarily recognized as a charge against income, i.e., as an operating expense just as any other expense is incurred or budgeted for the future. From another standpoint, this *provision for depreciation* is an insurance against *capital loss* and/or the *loss of operating continuity* of the property.

In accounting practice the accumulated annual or periodic provisions for depreciation are recognized in a "depreciation reserve" account and thus constitute an appropriation of the "surplus" on the liability side of the balance sheet as of any date. If an actual "fund" is accumulated in monetary deposits or investments, such are "earmarked" and segregated from, but must be shown along with, other assets on the books of account. The accounting procedure, however, is not significant to this discussion. The important point is that there is not necessarily an exact balance as between accrued depreciation and the accruals in the depreciation reserve. The *provision for depreciation* should be reasonably accurate but should normally err on the side of conservatism by being set aside at a somewhat larger rate than appears to be actually in

TERMINOLOGY

For a proper consideration of the subject, it is desirable that there be agreement in terminology. The following definitions of terms relating to the subject of depreciation have been taken from the *Preliminary Report on Appraisal Terminology*, issued in 1935 by the American Institute of Real Estate Appraisers.

Depreciation: Loss in value from any cause. In appraisal technique it is relative, usually capable of expression in terms of money; however, in actual practice, loss in property investment through the change in price levels, i.e., the purchasing power of money, is not ordinarily involved in the concept of "depreciation."

Depreciation, Accruals For: Provision for (usually credits to reserves on accounting statements to provide for) depreciation expense being incurred or to be anticipated.

Depreciation, Accrued: The actual depreciation existing in a property at a given date (whether or not recognized in, or coinciding with book reserves), resulting from any cause as determined, not by any theoretical provision, but by physical inspection—intended to include all depreciation and therefore slightly at variance with "Observed Depreciation" which implies more of that which is visible or clearly indicated.

Depreciation, Book: The amount reserved upon the books of a corporation to provide for the retirement or replacement of an asset, as distinguished from "Depreciation, Accrued."

Depreciation, Economic: Loss in use and value of a property occasioned by external economic conditions or demands, as distinguished from loss in value from physical deterioration and functional depreciation.

Depreciation, Functional: Loss in the value of a property resulting from changes in the art or design, overcapacity, and inadequacy as related to a specific requirement, as distinguished from physical deterioration and economic depreciation.

Depreciation, Observed: The loss in utility and value of a property as compared with a new property that is determined by the actual inspection of the appraiser.

Depreciation, Physical: Loss in the value of a property from a lowered physical condition resulting from wear and tear and use in service, as distinguished from functional or economic considerations.

Depreciation, Rate: The rate or percentage at which the usefulness of a property is assumed to become exhausted, or at which amounts are computed to be set aside to provide for anticipated depreciation expense.

Depreciation, Reserve: The account upon the books of a business concern wherein the "Accruals for Depreciation" are recorded.

Depreciation, Theoretical: A term applied to the method of estimating depreciation upon the basis of the assumed or theoretical lives of the various items comprising the property.

Deterioration: Lessening in physical condition. (See "Depreciation, Physical.")

evidence at the moment in order to safeguard the investment against extraordinary and unanticipated hazards with a reasonable margin of safety. On the other hand, the existing accrued depreciation at a certain time reflects *a state of being of actual property* and is subject to reasonable check upon direct inspection and upon the application of proper engineering technique.

THE NATURE OF THE ESTIMATE

All appraising is a matter of the application of knowledge gained through long experience in assembling and analyzing the information on a certain problem, and thereafter the exercising of sound judgment against the evidence and the rendering of a carefully considered opinion. The appraiser deals with *property facts,* but his observance and measurement of the influence of those facts are essentially *estimates.* He cannot fix nor determine value—neither can he fix nor determine depreciation. He can and does *estimate depreciation,* just as he does all other elements bearing upon value. The nature of his estimate is a composite opinion moulded by trained judgment with respect to many economic forces. Properties are regularly bought and sold upon the basis of someone's estimate of their *condition* and *desirability* as compared with a *new* property. The influences more readily subject themselves to segregation and to estimate than do those factors bearing upon the value of bonds and stocks and other evidence of property investment and potential earning power.

Above everything else, the appraiser should always keep uppermost in his mind the thought of *balance* in his estimates. Each step in the application of the appraisal process must receive the same degree of care and detail—otherwise the final result cannot be brought within the spread or bracket of reasonableness. To slight the depreciation estimates in favor of meticulous detail in estimating the reproduction costs, income, and capitalization factors usually results in a wider range of error in the final result.

PROCEDURES IN DEALING WITH DEPRECIATION

Fundamentally there is no difference in the basic principles upon the part of various recognized authorities on appraising. In recognizing depreciation in the appraisal process, the difference is entirely one of technique.

In applying the process:

1. Some authorities take the position that the appraisal process throughout is one of dealing in the income streams of the future and obtaining the present worth of such income, which is called the "value estimate." "Accrued depreciation" at the date of appraisal is not directly estimated—it is reflected by the shortened economic life remaining in the property.
   - A. As a concept, no fault can be found with it; it applies perfectly in a case such as a guaranteed annuity as reflected in a "leased fee" with predetermined rentals and life expectancy.
   - B. In practice, it is oftentimes impractical for several reasons:
     - a. Incomes follow no set level or curve.
     - b. Accrued depreciation (loss in value) occurs usually to a considerable extent before the income decline starts.
     - c. Appreciation (an increase in value) may be brought about by outside influences in an amount sufficient to offset the effect of income declines, particularly in those cases where

the improvement is not a proper nor adequate structure for the site.

2. Other appraisers take the position that the appraisal process is one of dealing with *current* capacity for utility—the needs and desires upon the "buyer-and-seller" principle—and interpreting estimates of "futures" in the light of today's evaluation of relative investment risks.
   A. As a concept, it does not differ except that the public's evaluation of future trends and expectancies is adopted as a premise rather than the detailed forecasting by the appraiser. This, of course, is relative only; in so far as conditions and changes are reasonably indicated upon the known facts of today, such are recognized in the income forecast.
   B. In practice it is susceptible to data assembly and statistical proof.
      a. Incomes can usually be estimated with some reasonable degree of accuracy over a limited future period.
      b. The public does buy and sell properties and therefore establishes multiples against known incomes[1] (capitalization rates) that include estimates of hazard and risk.
      c. A part at least of "accrued depreciation" (lessened value) is susceptible to measurement by direct inspection and logical estimates against known conditions—thus reducing the spread or degree of error. This fact has the recognition of the public and the courts.

1. For example, a multiple of 12½ means that the capitalization rate is eight per cent, and a capitalization rate of six per cent is equivalent to a multiple of 16⅔. The multiple is the number of years' net yield which might be paid for the property and which might represent its market value.

So much for the broader principles! In actual practice, there are three methods of estimating accrued depreciation that are in sufficient usage to carry some degree of weight and authority. These are discussed in the following order and designated as:

1. The "age-life" method (straight-line variable base and sinking fund).
2. The "annuity" (all-inclusive) method.
3. The "observed condition" method.

The "age-life" method is predicated upon the assumption that a property item may be expected to be useful for a certain number of years or that it possesses the capacity to produce so many units of service, and that it accordingly loses value in accordance with its age or the number of service units produced out of the total expectancy. This thesis forms the basis for the Interstate Commerce Commission's valuation of the railroads. Where adopted by organized governmental authorities, it is customary to carry the theory still further and to estimate the probable "salvage" at the time the useful life of the item is assumed to expire and to compute the difference between the *first cost* or *cost new* and the *salvage* as a *depreciable base.*

A variation of this method is to consider the expectancy of remaining life of the property item as compared to the expectancy of total life, the difference, when translated into percentages or figures, reflecting the accrued depreciation. This variation serves to discount the effect of actual age or expired life and to permit the recognition of extended life expectancy through unusual maintenance, subnormal service, or actual replacements of parts.

The "age-life" method, or more particularly its variation, is being advanced very forcibly by many Public Service Commis-

sions in developing the rate base for public utility rate adjustments. In this sense it is tied in very closely with the "accruals for depreciation" and the "depreciation reserve" in operation and accounting phases.

In certain classes of property and for some purposes, it has considerable merit. In continuous properties, such as a large gas system serving a municipality, various classses of items, such as distribution piping, reach definite cycles of removal and replacement in service and thereby develop "experience" trends and curves that are good guides to the life expectancy; from these may be estimated the distance along such life curves that certain items have progressed. The method has virtually no merit, however, as applied to a single unit of income (investment) property, so far as the real estate in the improvement is concerned, since the life expectancy is usually controlled by the property as a unit rather than as a series of items, and, in any event, such a property cannot be treated as a "continuous" property.

It is effectively used, in a limited sense however, in connection with furniture accounts in apartment houses.

The accrued depreciation may be computed on the "age-life" method or its variation by the use of the *straight-line* basis, whereby regular annual accruals are set up on the ratio that one year bears to the total estimated life; on the other hand, it may be calculated by the use of the *sinking fund* method, whereby appropriations for depreciation are considered to be invested at a given rate of interest compounded, which will accumulate to equal the investment at the time the item is retired. The reader is no doubt familiar with the mechanics of this sinking fund computation. Needless to say, it is unsound and inapplicable to investment property appraising. In fact, it is even fallacious in the appraisal of any other kind of property, since at no time during the life of the property, except at the beginning and the end, will the "depreciation reserve" equal the theoretical accrued depreciation excepting by the merest chance.

Any investment property has, however, many items in its construction which have a life expectancy of less than the property as a whole and which must therefore be replaced one or more times during the economic life of the building (such as boilers, pumps, elevators, plumbing fixtures, etc.). This method properly applied in considering the influence of such items as distinguished from but effective with respect to the value of the whole is entirely logical, provided the actual condition of the item is the limiting factor rather than the recorded age.

The "annuity" method has been dealt with at some length in a recent article by Ayers J. du Bois, M.A.I., which was published in the *Journal of the American Institute of Real Estate Appraisers*, January, 1936, issue, under the title "Depreciation—Past and Anticipated."

The "observed condition" method is based upon direct engineering inspection, detailed estimates of accrued deterioration, studies of functional deficiencies, and other conditions affecting the property and its future desirability that give it less value than a new property or one which would be capable of rendering the maximum of service. Irrespective of the basis adopted in treating and providing for depreciation in any practical problem, the "observed condition" method has the merit of reflecting the expression and opinion of the appraiser founded upon existing data and currently observable conditions and relationships. The "step-by-step" comparison of the property as it *is* with the "100 per cent property" as a *base* lends greater weight to the expressed judgment and takes the estimate to some de-

gree out of the realms of pure speculation.

Even where some "blanket" treatment is adopted for valuation purposes, the result is greatly strengthened if the appraiser makes a direct study of and report upon the "condition" and relative desirability of the property as it stands. It serves to support and substantiate his reasoning and judgment as to the remaining economic life and even the rate of declining income, if he attempts to adopt such premise for appraisal purposes.

In practice the "observed condition" method is much like the successive bites out of an apple. There will always be a core or unknown left, but it is greatly reduced in size and the element of error reduced accordingly. The several steps in estimating depreciation by the "observed condition" method follow naturally along the lines of the *causes* of depreciation, which are outlined broadly in the following:

Deterioration—
- Deferred maintenance or deterioration in property items subject to replacement.

Structural Obsolescence—
- Over or improper construction.
- Inefficiencies in layout.

Amenity Factors—
- Age itself.
- Poor architectural design and appearance.

Operating Factors—
- Excess facilities or capacity.
- Excess operating and maintenance expense.

Economic Factors—
- Changing neighborhood influences.
- Competitive influences.

To some extent some of the above factors are tied closely together and are more or less interdependent. All of them have, however, an influence on value. The "annuity" method permits the combining of all of these factors into a single estimate, i. e., the estimating of the combined effect upon the amount and rate of decline of future net income. In fact, in the "annuity" method no comparisons are injected necessarily since the *value estimate* automatically reflects the allowance for accrued depreciation. The actual allowance would in theory, under this method, be best expressed as the difference betwen the value estimate on the "income capitalization" principle for a hypothetically new or starting 100 per cent property and that under consideration.

The "observed condition" method is tied in directly with the application of the entire appraisal process. It is used and essential to some extent in the development of each of the three "approaches." In the "comparative approach" proper comparisons against other properties which have been bought and sold, leased, etc., cannot be made unless the relative condition and desirability of the respective physical properties are studied. In the "reproduction cost approach" the estimated costs of reproduction new are not fully informative unless the extent to which the subject property has deteriorated or become less desirable than the hypothetically *new* property is estimated. In the "income capitalization approach" the current and anticipated income potentialities cannot be logically estimated unless adjusted to reflect the maintenance and replacement expense that the subject property must anticipate, as compared with either its past operating history or with normal standards in a new or *starting* property.

It may be well to reiterate at this point that the appraiser does not expect to obtain exactly the same results under each of the three approaches. If every bit of necessary information were susceptible to exact determination and interpretation,

then the three results would be the same. This, of course, is never possible. Too many variables are involved. The three approaches are applied independently upon the principle that such procedure, that is, the analysis of the problem from three separate approaches, serves to narrow the degree of error in the final value estimate. There is, of course, considerable overlapping of data and interpretation in each approach, but the greater the degree of independence that is maintained in the three estimates, the more valuable the results obtained thereunder.

THE LEGAL FOUNDATION OF DEPRECIATION

When the appraiser arrives at his value estimate and presents his opinion, his work is not necessarily completed. He is frequently called upon to explain and substantiate his estimates. However correct his findings may be, they must be logically developed and subject to orderly presentation and interpretation by the lay clients and, on many occasions, by the courts or regulatory bodies. He must be able to lay down sound premises and supporting detail behind his assumptions and forecasts.

The courts are inclined to heavily discount "futures" that are wholly unknown in favor of the factual data surrounding any particular holding as of the current date. The *American Institute of Real Estate Appraisers* fully recognizes the necessity for educating the courts and other constituted authorities on sound valuation principles and is taking definite steps toward that end in its educational program. The Institute also realizes that this is bound to be a slow process and that the endeavor, to be successful, must be a gradual and painstaking process. Past precedents cannot be effectively attacked overnight. To attempt to do so would indefinitely delay the progress and perhaps bring the Institute into professional disrepute.

The recognition and treatment of "depreciation" has long been the subject of legal controversy. However, rather definite precedents have been gradually established. The United States Supreme Court has repeatedly held that the "observed condition" method of estimating accrued depreciation should be accorded the greatest weight. The Court recognizes the intangible nature of the estimate, but for this very reason it has always taken the position that the opinion of a qualified witness, based upon his actual and personal inspection of the particular property, together with skill in application of principles of depreciation estimating, must take precedence over mathematical computations and forecasts, however logical such may appear.

Two quotations from decisions of the United States Supreme Court are sufficient to illustrate the settled opinion of this body.

> "The testimony of competent valuation engineers who examined the property and made estimates in respect of its condition is to be preferred to mere calculations based on averages and assumed probabilities."
> *McCardle vs. Indianapolis Water Company* (272 U. S. 400, 71 L.Ed. 316).

> "Appellant objects to the application of this method,[2] and insists that depreciation should have been ascertained upon full consideration of the definite testimony given by competent experts who examined the structural units, spoke concerning observed conditions, and made estimates therefrom. As these examinations were made subsequent to the alleged depreciation, for the definite purpose of ascertaining existing facts, we think the criticism is not without merit. Facts shown by reliable evidence were preferable to averages based upon assumed probabilities."
> *Pacific Gas and Electric Co. vs. San Francisco* (265 U. S. 403).

Also see *New York Telephone Co. v.*

2. Commission had used the "age-life" basis computed upon the **sinking fund** method, which was approved by the Master.

Prendergast, (300 Fed. 882); *Southwestern Bell Telephone Co. v. City of Fort Smith,* (294 Fed. 102); *Nashville, Etc. R. Co. v. U. S.,* (269 Fed. 351); *State of Kansas v. Southwestern Bell Telephone Co.,* (115 Kas. 236); *City of Winona v. Wisconsin-Minnesota Light and Power Co.,* (276 Fed. 996); Etc.

Mr. William A. Prendergast, former Chairman of the Public Service Commission of New York State, stated in reference to this question in a recent work:

> "The straight-line, sinking fund, or other such methods are all based upon theory, predictions, and assumptions; and in cases where accrued depreciation has been deducted, they have been discarded in favor of the tangible and observed facts from actual inspection and test by competent engineers and those best qualified to act."

It should be remembered by the appraiser in considering this matter that the courts have usually passed upon it in connection with public utility valuation problems in rate regulation. However, in some of these cases financing and condemnation were involved, and the use of the appraisal or the character of property has not yet been the subject of definite distinguishment in the questions of accrued depreciation.

It should be further understood that the *method* adopted for measuring accrued depreciation may be considered apart from the *method* of valuation. The Institute is beginning to note that the courts are inclined to give increasing recognition to the income position and potentialities in the valuation of investment properties, but even if the "income capitalization approach" is ultimately accorded the full significance that is justified and for which the energies of the Institute are continually devoted, the condition of the property and the extent to which its depreciation may be estimated therefrom will always be accorded a prominent position in the appraisal process, regardless of the method of estimation. The actual inspection and report thereon will be a factor looked for in the testimony and given material weight by the courts.

The Interstate Commerce Commission has adopted some quite untenable rules and regulations for the treatment of accrued depreciation. Yet the railroads, while decrying the rules in practical application, nevertheless have recognized and accepted many of the principles and premises laid down. Here again, of course, the railroads are in the nature of *continuing* properties and as such are basically different from the usual investment property. However, many of the properties of the railroads, such as "station and office buildings," *are* investment properties and are accorded *continuity* simply as items of the larger basic investment.

The viewpoint of the Interstate Commerce Commission is briefly expressed by the following quotations from the Order of July 28, 1931:

> "The distinction between service efficiency and service capacity is important. Loss in service capacity causes depreciation in value, but may not . . . in itself cause loss in service efficiency."

> "In determining the extent of depreciation the essential question in the case of any class of property is, What is the best approximation that can be made of the loss in service capacity? Ordinarily the answer will be expressed in units of time."

> "The real measure of depreciation is the extent to which service capacity has been exhausted. Wear and tear, obsolescence, inadequacy, etc., are all factors in depreciation, information as to which constitutes evidence to be given appropriate weight in determining the extent to which service capacity has been exhausted."

> "The principles are identical which govern the estimating of loss in service capacity for both accounting and valuation purposes. The same elements which produce depreciation for accounting purposes likewise produce depreciation for valuation purposes and they can not properly be observed and taken into account in the one case and at the same time be overlooked and neglected in the other."

"The sinking fund, straight-line, and other methods of accounting for depreciation compared and for reasons stated the straight-line method approved."

"Depreciation is the loss in service value not restored by current maintenance. . ."

"The total expense of depreciation in connection with any item of property is its service value determined by taking into consideration ledger value and salvage value or net salvage value. . . ."

The "base," of course, adopted by the Interstate Commerce Commission is the "ledger value," that is, the *actual cost* to the accounting company. (The use of book costs is, of course, contrary to the entire concept of estimating depreciation or providing for anticipated depreciation as laid down by the Institute.) This is the same viewpoint taken by the Internal Revenue Department and most of the other governmental bodies where the provision for depreciation is recognized as an actual operating expense. The United States Supreme Court appears to have established a ruling principle contrary to the governmental bodies discussed and in exact accord with the concept followed by the Institute.[3]

Until quite recently accountants refused to consider any recognition of reproductive costs in the estimating of depreciation. There has, however, been quite a swing in the past several years to the more logical point of view, that provisions for replacement (that is, provisions for anticipated depreciation) must necessarily be set up in amounts which would make the actual replacement possible under the prices prevailing at the date of the retirement. This article does not intend to discuss all of the ramifications of the subject but rather to bring out some of the more pertinent factors, practices, etc. that to some degree bear upon the practical aspects of the entire subject.

The Bureau of Internal Revenue under the Treasury Department accords great importance to the questions of depreciation. In general, this has greater significance in accounting practice. Nevertheless, the appraiser is called upon to set up the foundational figures and premises both as to *accrued depreciation* and *life expectancies*, and his work is attaining a more and more prominent place in Income Tax procedure.

The Secretary of Agriculture is empowered to administer the *Packers and Stockyards Act of 1921*. From the start the procedure of this Bureau has been to use the "observed condition" method of estimating accrued depreciation, as distinguished from the Interstate Commerce Commission's "age-life" theory. In this respect the Secretary has definitely followed the rulings of the United States Supreme Court (see above).

The Securities and Exchange Commission requires a definite report on the balance sheet items in the "registration statement" to be prepared and filed in all public financing where the securities are to be sold in interstate transactions. The condition, utility, and relative desirability of the physical property as compared with the book figures or the appraised costs must be reported upon independently from the earnings position and future forecast. This Commission has not as yet accorded the appraisal the proper recognition in the "registration statement," but considerable progress along such lines has been made by the efforts of various organizations, including the American Institute of Real Estate Appraisers, the Association of Appraisal Executives, the American Society of Civil Engineers, and others. The "ob-

3. See United Railways and Electric Co. of Baltimore vs. West et al. (280 U. S. 234, 247).
The Court said in its opinion:
"The allowance for annual depreciation made by the commission was based on cost. The Court of Appeals held that this was erroneous and that it should have been based on present value. The Court's view of this matter was plainly right. . . Manifestly, this allowance cannot be limited by the original cost, because, if values have advanced, the allowance is not sufficient to maintain the level of efficiency. . . It is the settled rule of this Court that the rate base is present value, and it would be wholly illogical to adopt a different value for depreciation."

served condition" method has been fundamental in such recognition as accorded by the S. E. C. in applications to date, and the Commission's Engineers have adopted this method in all of their independent check investigations. The Federal Housing Administration stresses property inspection and condition in connection with its "rating procedure," as do many other governmental units. The appraiser should become familiar with the practice recognized by all of these public bodies, as well as with the Courts' viewpoints as expressed in many decisions. He will thus add to his knowledge of this controversial subject and be in a position to more effectively analyze any particular situation and substantiate his conclusions, irrespective of the particular method he may adopt in an actual appraisal.

THE NECESSARY INTERRELATION OF ALL METHODS

The underlying purpose of each of these methods is the same. In the final analysis the appraiser is attempting to estimate value. A property that is badly deteriorated as to its physical elements will have either a lesser life expectancy than one which is in good condition, or extraordinary expenditures will be required in sufficient amount to offset such deterioration and its effect on the expected life.

Estimates of "decreased desirability" at the date of appraisal due to neighborhood influences, lack of balance in improvements, over-construction, etc. are in reality nothing more than estimates of decreased future income potentialities expressed in terms of today's purchasing desires and allowances. In many cases there is an interlocking of estimates that in fact do not differ in any material respects. As has been previously stated, the "cost of reproduction less depreciation" would coincide with the "income capitalization" estimate provided all depreciation could be accurately estimated and provided all future income could likewise be accurately forecasted.

It is repeated that this discussion does not recommend any one method for estimating accrued depreciation. It is rather intended to present all phases of the problem with which the experienced appraiser must be fully familiar when undertaking the valuation of large investment properties for various purposes.

THE USE OF AND DANGERS OF "LIFE-TABLES"

In estimating accrued depreciation or its effect upon the value of a property, we are naturally led to consider the recorded experience of the use and life of various classes of property items. Such data are, of course, significant. They should be used, however, with great care. Age itself has an influence upon the condition and desirability of a property, but the years of useful life may be a factor of many influences besides age. The degree of "use in service" may greatly shorten or lengthen reasonably expected physical life. Of even greater effect, however, are the external influences of changing neighborhoods, competitive factors, popularity of styles, etc., that is, matters outside of and physically independent of the property itself.

Many "life-tables" have been prepared by various appraisers. These range all the way from estimates of useful life of entire buildings of varying types of construction to those detailed estimates of the lives of the many items and elements embraced in a single building. In no instance can such tables be accepted for direct application except in mass appraising, such as for taxation. However, empirical studies relating to specific items under differing standards of installation and use may be helpful and afford the best evidence for the appraiser in many of his problems.

Such items as boilers, pumps, fixtures,

piping, and building materials, assembled in certain ways, *do* have a life expectancy that is less than that of the structure as a whole. These items are subject to more or less regular replacement. A single item estimated to last twenty years may, in fact, have to be replaced in fifteen or even ten years, or may last with ordinary maintenance for thirty years or even more.

However, when a large number of such items are embraced in a detailed estimate, the errors tend to compensate, and the entire estimate takes on greater precision. Irrespective of the errors in estimating that may ultimately be found to have occurred, the appraiser who meticulously makes his studies by inspection and careful analysis is fully serving in his professional capacity. He is making his value-estimate in the light of the conditions as he finds them just as he does in all of his other estimates.

Again it may be stressed that the expected useful life of the shorter-lived property items in a building must be estimated regardless of the approach to the value estimate. Anticipated income must be adjusted to provide for periodic replacements which, of course, call for life estimates.

Empirical tables are a guide to judgment but cannot be substituted therefor. This is for the reason that they are nothing more than averages of widely dissimilar items existing under different conditions and because of which fact the average may not be representative of any single one of the items from which it was derived.

THE HAZARDS IN THE "ANNUITY" METHOD

The "annuity" method whereby "accrued depreciation" is automatically and directly compensated for in the value estimate, while sound in theory and applicable under certain conditions, is subject to all of the hazards of other methods and, in addition, is founded upon basic premises that are almost entirely speculative and difficult to support. In principle, under this method, the recognition of accrued depreciation is wholly dependent upon the year-by-year estimates of changing net income (normally downward as the property grows older) and the prediction of the remaining useful life expectancy of the property as a whole.

The theory behind the method, as brought out hereinbefore, is to reflect the influence of depreciation on the future earnings from the property rather than to estimate the current deficiencies as such. In effect, it defers the allowance to the end of the life term. For example, a structure of a certain type, if new or a proper improvement, is assumed to have an expectancy of forty years of remaining life. In its present condition, however, the appraiser assumes it will last but thirty years. A prediction is made of the stages and rates of income decline and the present worth obtained. The "accrued depreciation" reflected in the computation is the present worth of the income predicted for the period starting in the thirty-first year of the "new" property and running for ten years thereafter.

Obviously, the estimating of income thirty years hence is too speculative for serious consideration in practical appraising. What function then does the "annuity" method perform in the appraiser's equipment? It has some merit in the forecasting of income for the *immediate* future. This is developed by estimating the increased "maintenance and replacement expense" in excess of a new or "100 per cent property" over the period that would be required for the new property to depreciate to a point where its requirements would coincide with the existing property.

However, this estimate is *always* applied in the "income capitalization approach." Therefore, the so-called "annuity" method is not in fact essentially a practical method of estimating accrued depreciation at all but rather one method for obtaining the *value estimate* itself.

"ACCRUED DEPRECIATION" A PROBLEM OF TODAY

As stated in the beginning of this discussion, "accrued depreciation" is the "spread" or deficiency in a property as compared to a *standard* or *base* property. The estimating of such deficiency is one of the direct and practical problems faced in every appraisel. It is recognized and allowed for in the purchase and sale, financing, taxation, and operating of investment properties.

To illustrate the practical aspects of the "accrued depreciation" estimate, consider the situation of two apartment houses built from the same plans and specifications but one brand new and the other ten years old. Since the layout and general location are the same, the rental basis of both properties is still the same, i. e., they both have the same immediate income potentialities. The older property has suffered deterioration in many of its elements and should have some expenditures made in reconditioning at this time. Furthermore, some replacements of equipment and interior fixtures will be required at an earlier date than for the new property. Perhaps it is reasonable to assume that the older property will have a shorter total remaining useful life expectancy. How should the appraiser proceed under this example in the appraisal of the older property? He sets down the facts and conclusions as he sees them—about as follows:

1. It is estimated that there should be spent an estimated amount of $..... on the old property. It should be spent now. This is a direct deduction from whatever value is assigned to the new or "base" property.
2. It is estimated that there has accrued further deterioration in various property items that cannot or need not be replaced at the present time. This deficiency may be termed "accruals for periodic replacements" and is also a direct deduction in the estimated amount of $.....
3. The layout and architectural design are identical, and no deficiencies are reflected in the older property.
4. The location is the same, and economic influences apply equally to each property.
5. The gross income expectancy is the same in so far as it may be predicted over the immediate future. The older property may develop a lower income in advance of the new property, but assuming ordinary maintenance and replacements of short-lived items, this conclusion would be entirely speculative. As a matter of fact, the physical structures might well last 100 years or more, and both are soundly constructed, so there appears to be no logical reason to anticipate such a possibility. It is conceivable in fact that the newer property, for reasons not now apparent, might be the one to so suffer. Therefore, this speculation has no place in the estimate.
6. Assuming that the expenditures have been made for "replaceable deterioration," the net income expectancy will be identical excepting for certain adjustments that are susceptible to reasonable estimation, including:
   - A. Provision for "periodic replacements" should be increased for the older property which must be estimated in the light of the estimates under No. 2 above. The increased allowance for the older property is $..... per annum. This differential will be offset within the space of a few years as the new property deteriorates and the older property has the replacements actually made.
   - B. The older property has a distinct advantage in "fixed expense." The assessment made at the time the property was constructed has been reduced by "theoretical depreciation." The same is true of the insurance premiums. The advantage in favor of the older property is estimated at $..... per annum.
   - C. Allowable deductions for "depreciation" from net income for State and Federal Taxes are presently the same. However, the older property has already had the benefit of ten years of such deduction, so the new property will ultimately benefit accordingly. This is a deferred advantage, however, and at the most is sig-

nificant only in the event of continuing sustained ownership and operation.

7. The fact that the older property has attained an age of ten years, while apparently insignificant, must receive some consideration. It makes for lessened desirability at least in the mind of a purchaser, irrespective of the balance or otherwise in other estimates. This factor must be wholly a matter of judgment of supply and demand for investments, etc. During periods of firm rental demand, such influence may be entirely negligible, whereas under depressed conditions the older property might be penalized. To a large extent this may be offset, however, by the *name* and *goodwill* built up by the older property and its satisfied clientele.

Now, in this example, it is obvious that the most logical estimate is made by this step-by-step analysis of setting down the "pluses" and "minuses" against the properties. The actual *value estimate* in each case will be made by applying the three approaches. The accrued depreciation, however, on the older property definitely detracts from its desirability and value even though the net income potentialities appear to be the same when the discrepancies are all "ironed out." Accrued depreciation is definitely a problem of *TODAY*, and the appraiser is faced with its reasonable measurement regardless of the major approach adopted as controlling in his appraisal. The accrued depreciation must be deducted in some manner in the "income capitalization approach," just as in the "reproduction cost approach." The basis of its computation should be equally well fortified by current inspection and analysis under either approach.

THE ESTIMATING OF ACCRUED DEPRECIATION

We may now summarize in an orderly manner the practical estimating of accrued depreciation in the appraisal of a large or complex investment property.

"Deferred maintenance" may be estimated by careful engineering inspection and recorded directly in accordance with the costs for restoration to proper condition. "Non-replaceable deterioration" may be estimated by computing the "accruals for periodic replacement," using the remaining life expectancy basis for short-lived items.

We next consider the questions of "structural obsolescence," i. e., the evidence of over or improper construction, inefficiencies in layout, etc. Just as in the treatment of "deterioration," we have two ways of approaching these deficiencies: first, estimate the cost of rearrangement and other work involved in overcoming the inefficiencies, and, second, "write down," by comparison, the deficiencies that cannot practically be overcome.

"Writing down," by comparison, the deficiencies that cannot practically be overcome may be handled in many ways, depending entirely upon the conditions surrounding the problem. As an illustration—it was a most important factor in the recent appraisal of a large "loop" hotel in Chicago.

This hotel is of the older type but has been well maintained, kept up to date, and the "room rating schedule"[4] (the index to income potentialities in hotel appraising) is on the same basic level as the other large and newer hotels. However, the hotel is definitely approaching obsolescence, but just when and to what degree it will affect the income potentialities are not ascertainable upon any logical estimate at the present time.

An inspection of this hotel showed unusually thick and massive walls, unnecessary exterior embellishments, and interior waste of space. The cubage of the building, when divided by the number of guest rooms, showed in excess of 9,000 cubic feet

[4] The schedule of the per diem rates set up against the guest rooms for single occupancy. The weighted rate, for example, might be $4.50 in a large metropolitan hotel; the range of rates in such case would vary perhaps from $3.00 to $7.00, but the greater portion of the rooms would be "sold" at from $3.50 to $5.00 per day.

per guest room. Many other conditions indicative of excess construction and ineffective utilization of space were disclosed. The appraiser decided to approach the problem on the basis of comparison with modern approved standards. He estimated the size and normal cost of a hotel which would most likely be erected today in order to operate under the same basic *plan* and provide the essential facilities in an economic but none the less high grade manner of construction. His hypothetical hotel contained 7,500 cubic feet per guest room, and its cost was reduced by adopting modern construction standards. The difference in the cost estimates was interpreted into terms of "structural obsolescence" and became a penalty not only against the "reproductive cost approach" but also the "income capitalization approach."

Having proceeded thus far, he realized that even by deducting for this excess construction, the property still had to continue operation as it was. The expenses of heating, cleaning, maintenance, etc., were higher than would be true in the hypothetical building. This penalty was, of course, reflected in regular operations but could not be recognized and segregated. The appraiser made computations of normal operation for the proper improvement, the difference or excess for the older building being considered a loss or deficiency. Its capitalization reflected the added structural obsolescence.

The amenity factors are, of course, most difficult to determine. Generally, they are more or less absorbed automatically in both the "reproductive cost" and the "income capitalization approach." They must always be studied in the light of local conditions, surrounding properties, styles or modes in demand at the moment, etc.

Operating factors are directly embraced in such elements as excess capacity and the related excess operating and maintenance expense. Sometimes they may be merged at once with the income estimation, whereas on other occasions estimates should be made as a deduction from the reproduction cost estimates for further depreciation.

Again using a hotel as an example and referring to the latter practice, an appraisal of a large commercial hotel in the city of Pittsburgh was made during the past winter. This appraisal was for "reorganization" purposes, and the appraiser assumed grave responsibility in estimating the value of the property. Any substantial error was bound to seriously affect some of the interests involved. In undertaking the investigation he followed quite literally the appraisal process. The reproductive costs were determined, a careful physical condition survey was made, and the estimated costs reduced accordingly up to the extent of the allowance for over-improvement (excess capacity).

A thorough investigation of local hotel facilities, both as to character and quantity, led to the conclusion that this particular property had a large excess number of rooms. The amount of such excess was quite accurately supported by charting the "peaks" and "valleys" in occupancy throughout a period of years for both the property under review and those properties in competition. The excess rooms and the resulting influences were written off in the cost estimate. Secondary support was accorded by the income-capitalization estimates, independently made. There was little difference in the results on either basis.

FINAL CONCLUSIONS—RELATIVE DESIRABILITY

The appraiser must constantly bear in mind that in all "approaches" to the appraisal process he is concerned with the measurement of economic desirability—

which means in reality *relative* economic desirability. This in turn calls for comparisons against a base, and the differential we call "accrued depreciation." The cost of reproduction new of a property constitutes its upward practical limit of value, and in turn the "cost of reproduction less depreciation" is the upward limit of value if such depreciation is reasonably estimated. The capitalization of income will also be the upward limit of value provided the income is correctly estimated and the capitalization rate truly applies to the particular property under the conditions existing. There are hazards in both estimates. It is to narrow the range of error that both approaches are used, and unless both are used—honestly and as entirely independently as possible—the results may be unsound and certainly unsupportable.

The causes of depreciation are classified as *physical factors* (deterioration), *functional factors*, and *economic factors*. Such classification is made solely to aid the appraiser in his estimates. *All* are embraced in the single problem of *economic desirability*. No two properties are alike, and the procedure in one case may be inapplicable in another. There are no set rules for estimating accrued depreciation. Most emphatically, however, a sound appraisal cannot be made of any large, major investment property without painstaking inspection and analysis of the condition of all its parts and the recognition thereof in some practical and demonstrable manner in the final value estimate.

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The Data Program

By AYERS J. DU BOIS, M. A. I.

PRELIMINARY DATA

LET us assume that you have received a telephone call to see a party regarding making an appraisal of an apartment house. You have had a conference and have ascertained that the value estimate is desired to determine what selling price would represent an amount that users in general would be warranted in paying for the property. The terms of employment have been agreed upon, and you are ready to begin the undertaking. What steps shall you take first?

Data of Public Record: You will need to know or make assumptions on exactly what property—in both a substantive and legal sense—is to be appraised. Therefore, the first essential data are:

1. The legal description of the property.
2. The nature of title.

With the legal description in your possession, you can refer to official records and ascertain:

1. The location of the site in the community.
2. The physical characteristics of the site.
3. The tax data.
   - A. Tax rate, taxes, special assessments.
   - B. Assessed value of land.
   - C. Assessed value of building.
   - D. Tax assessor's estimate of area or volume of building and his estimate of replacement cost new.
4. Public restrictions affecting the use of the land.
   - A. Zoning.
   - B. Fire ordinance, building and plumbing code, and public health and sanitation regulations.
   - C. Special legislative enactments affecting the site.
5. Building plans and specifications (if on file as a public record).
6. Date and amount of building permit.
7. Names of:
   - A. Architect.
   - B. Builder.
   - C. Previous owners of the property on the tax records.
   - D. Owners and previous owners of adjoining and nearby properties.

Title Data: To ascertain the condition of title, you will need to read the abstract or certificate of title, policy of title insurance, or other evidence of title possessed by the owner. This will enable you to obtain information regarding:

1. The nature of the estates owned by various persons.
   - A. Fee simple.
   - B. Life estate.
   - C. Leasehold, or other estates.
2. The nature of existing encumbrances.
   - A. Private restrictions.
   - B. Recorded leases.
   - C. Reservations, easements, rights of way, and other encumbrances.
3. Defects in title.

OTHER DATA

With this information in your possession, you can proceed intelligently. The next thing to do is to determine what other information you will need and where you will be able to obtain it. This will vary with different use-types of property and with properties having different ages.

A classification of pertinent data will indicate what steps are necessary before the final value estimate is decided upon. Data can be classified in several ways. The type of classification given here recognizes that before reaching a final conclusion, the appraiser must make three kinds of estimates, namely:

1. A replacement cost estimate.
2. An estimate of the price obtainable in the market.
3. A capitalization estimate.

Necessary data, then, may be classified as follows:

1. Replacement cost data.
2. Market price data.
3. Income and capitalization data.

The classifications are cumulative in the order named, that is, market price data include replacement cost data, and income and capitalization data include both replacement cost and market price data.

Grouped under these data classifications would be the following:

Replacement Cost Data: Under this heading, information must be assembled which will enable the appraiser to make an estimate of the cost to reproduce the property in new condition. This necessitates knowledge of the building and its replacement cost, of the value of the site or cost of a site equally as desirable, and of other indirect items of cost which must be incurred in duplicating the property, in so far as this is possible. Therefore, this class of data will include the following:

1. The Building: Dimensions, proportions, gross floor area, cubical content, specifications, floor plan, room layout, number of rooms, number and sizes of units, number of baths, mechanical equipment,—in short, complete information about the physical characteristics of the building.
2. Construction Cost Data.
   - A. Original cost of building.
   - B. Amount and date of building permit.
   - C. Tax assessor's estimate of replacement cost.
   - D. Appraiser's (or contractor's) estimate of replacement cost, including builder's overhead and profit and architect's fee.
3. The Site.
   - A. Physical characteristics: width, depth, proportions, shape, topography, soil, subsoil, position (with reference to abutting street, street intersections, and orientation with points of the compass), trees, shrubs, streams, etc.
   - B. Usefulness: adaptability to various uses, limitations on use (restrictions, reservations, easements, rights of way; zoning, fire, building regulations), highest and best use.
   - C. Monopolistic characteristics: supply of competitive sites, their advantages and disadvantages as compared with the site under appraisal.
   - D. Comparative price data: asking and sales prices for lots of similar characteristics and usefulness, and conditions surrounding them; price probably obtainable for site under appraisal as indicated by comparison and deduction; price paid for the site by present owner.
   - E. Comparative value data: value estimates relating to other competitive sites.
4. Indirect Items of Cost.
   - A. Reasonable financing costs.
   - B. Miscellaneous indirect costs during construction period: pro rata of taxes, pro rata of insurance costs, interest on invested capital or mortgage.
   - C. Miscellaneous items: legal and accounting fees, contract bond, lot survey cost, landscaping, etc.
5. Development Costs.
   - A. Initial costs of renting: agents' commissions, advertising, etc.
   - B. Initial losses: losses (estimated deficit plus return on invested capital) during period between completion of building and attainment of occupancy equal to that existing at time of appraisal.

Market Price Data: Under this classification, information must be assembled which relates to market conditions and the price obtainable for the property under analysis and for other properties of like character. In the case of properties which are directly comparable as units—such as single-family homes or multiple-family residential properties in which the physical characteristics of the buildings, family capacities, environments, etc., are the same, or nearly so—market price data enable an estimate of price obtainable from buyers in the market by direct comparison of the property, use of sales and listing data, and inductive and deductive reasoning.

In the case of properties which are not comparable as units, such as apartment houses, hotels, store buildings, and office buildings, market price data will supply the basis for some of the items used in the capitalization estimate, such as gross rental value of individual units of space (per room, apartment, or per front foot of store space or square foot of floor area), vacancy factors, and capitalization rates.

In addition to the preliminary and re-

placement cost data, the following will be included under this heading:

1. The City.
   - A. Population, make-up, its growth and prospects for the future.
   - B. Economic background, natural resources, commercial, manufacturing, and industrial activities.
   - C. Its pattern:
     - a. District pattern: central retail, financial, wholesale, etc., district locations and boundaries; industrial and manufacturing districts; apartment and residential districts.
     - b. Street pattern: major arteries, etc.
     - c. Transportation pattern: bus lines, street railways, interurban lines, etc.
     - d. Social pattern: geographical distribution of inhabitants as to nationality, color, living standards, culture, purchasing power.
   - D. Its cultural facilities: educational and religious institutions, art centers, libraries, recreational facilities.
   - E. Its geographical features.
   - F. Topographical features.
   - G. Government: taxation, zoning and planning, police and fire protection, law enforcement.
   - H. General: water supply, public utility services and rates, financial statistics, school enrollments, manufactures, shipping, etc.
   - I. Direction, if any, of expansion of city, or its districts.
   - J. Internal changes in the district, social, and other patterns; mutation, decentralization, migration.
2. The Neighborhood or District.
   - A. Physical.
     - a. Extent.
       - (1) Extent of area occupied by buildings of same use-type and quality as building appraised.
       - (2) Trading area (if business property involved).
     - b. Street pattern.
       - (1) Ease of accessibility to and from other areas (time-distance factors).
       - (2) Ease of circulation within neighborhood.
       - (3) Hazards or disadvantages created.
     - c. Transport pattern: lines of transportation, fares, frequency of service, terminal points, etc.
     - d. Land use pattern.
       - (1) Number and distribution of buildings by use-types.
       - (2) Permitted uses of vacant sites according to public and private instructions.
     - e. Topography and geological structure.
     - f. Utilities pattern.
     - g. Conveniences: schools, churches, parks, recreation centers, libraries, etc.
     - h. Nuisances.
       - (1) Noisy enterprises.
       - (2) Smoke, objectionable odors, etc.
     - i. Hazards.
       - (1) Hazardous enterprises (explosives, inflammables).
       - (2) Floods, landslides, subsidence.
     - j. Visual aspects.
   - B. Social.
     - a. The residents.
       - (1) Number.
       - (2) Characteristics: race, nationality, religion, transiency, culture, buying and other habits, thriftiness, earning ability, family sizes, gregariousness, moral quality attitude towards government and law.
       - (3) Characteristics of residential occupants in the past.
       - (4) "Neighborhood" consciousness.
     - b. The merchants and business men.
       - (1) Race, nationality.
       - (2) Reputation.
       - (3) Aggressiveness and farsightedness.
     - c. The business enterprises.
       - (1) Number.
       - (2) Variety.
       - (3) History.
         - (a) Rate of mortality and failure and causes.
         - (b) Growth and expansion.
       - (4) Quality of merchandise.
       - (5) Merchandising methods.
         - (a) Ethical quality.
         - (b) Classification as obsolete, aggressive, up-to-date, etc.
   - C. Non-Physical.
     - a. Trend.
       - (1) Improving in desirability or retrogressing.
       - (2) In transition to:
         - (a) Higher use or lower use.
         - (b) Better occupancy or poorer occupancy.
     - b. Climatic conditions—unusually foggy, windy, humid, or damp.
     - c. Status:
       - (1) As residential district.
       - (2) As business district.
         - (a) Pedestrian count.
         - (b) Classification of pedestrians.
         - (c) Traffic count.
3. The Market.

A. Sales, offers, and listings—other properties.
   a. Description of properties.
      (1) Replacement cost data.
      (2) Market price data.
      (3) Income data.
   b. Price paid, offered or asked, and terms.
   c. Conditions environing the sales, offerings, or listings.
      (1) Dates.
      (2) Seller's or owner's position, intelligence, and bargaining ability.
      (3) Buyer's or offerer's intelligence and bargaining ability.
      (4) General economic conditions then existing.
      (5) Phase of economic cycle then prevailing.

B. Demand for properties.
   a. Recent history.
   b. Rate of turnover.
   c. Prospective trend of demand—stronger, unchanging, weaker.

C. Supply of properties.
   a. Recent history.
   b. Number of properties available for purchase.
   c. Number of space units (apartments, stores, offices, etc.) vacant.
   d. Number of properties and space units under construction or in prospect.

D. Real estate agents' opinions.
   a. Regarding fair asking price for the property appraised and other properties.
   b. Regarding price obtainable for the property appraised and other properties.
   c. Regarding market conditions and prospects of the property appraised and other properties.

4. The Property Being Appraised.
   A. Sales prices previously commanded and attending conditions.
   B. Income data.
5. Public preferences in regard to:
   A. Architectural styles.
   B. Building materials and methods.
   C. Mechanical and other equipment.
   D. Floor plans.
   E. Unit (i.e., the apartment, the office room, etc.), size, finish, facilities, etc.
   F. Geographical locations in community.
6. The appraiser's previously-made estimates of prices obtainable for similar properties.

Income and Capitalization Data:

1. Actual income from the property.
   A. Leases and their terms and conditions.
   B. Collection loss and vacancy data.
      a. History.
      b. Current conditions.
      c. Trend.
2. Actual income from like accommodations—other properties.
   A. Actual rentals and conditions of tenancies.
   B. Income trend and history.
   C. Collection loss and vacancy data.
      a. History.
      b. Current condition.
      c. Trend.
3. Costs of operation, maintenance, and management.
   A. Of other like properties.
   B. Of the property appraised.
4. Data regarding supply of and demand for like accommodations.
   A. In the city as a whole.
   B. In the neighborhood.
   C. In competing neighborhoods.
5. Capitalization data.
   A. Economic lives of buildings.
   B. Rates of return *expected* by the buying public.
      a. From property of like character and quality.
      b. From mortgages on property of like character and quality.
      c. From the types of property and investment.
   C. Rates of return *realized* by the buying public.
   D. Business conditions and future prospects in the community.
   E. Trend of price changes, i.e., changes in monetary purchasing power.
   F. Government policies, political and legislative.
   G. Credit and banking conditions and policies.
6. The Appraiser's Files.
   A. Capitalization rates and procedures used in other cases.
   B. Income and "deductions" estimates used in other cases.
   C. Value estimates of like properties.

SOURCES OF DATA

The data are very extensive. Many of them are accumulated by the appraiser in his routine activities from day to day and thus become a part of his general fund of knowledge, so that he does not specifically have to assemble them in every case. It is to be noted that data are not conclusions drawn by the apraiser but are factual information which he analyzes and correlates in order to deduce conclusions there-

from. This information is gathered from many sources, among which will be found the following:

1. The owner of the property and his agent.
2. Abstract of title, certificate or guarantee of title, policy of title insurance.
3. Public records.
   - A. Tax assessor, tax collector.
   - B. City clerk, city treasurer.
   - C. City engineer.
   - D. County recorder.
   - E. Planning and zoning commissions.
   - F. Building department.
   - G. Water and power departments.
4. Architect and builder of the structure.
5. Architectural firms and building contractors.
6. Inspections.
   - A. Of the property.
   - B. Of the neighborhood.
   - C. Of the city.
7. Real estate agents, owners, and financial institutions.
   - A. For sales, listing, and purchase—offer data.
   - B. For rental, vacancy, operating and management expense data.
   - C. For information regarding supply, demand, buyer's preferences, etc.
   - D. For mortgage data.
   - E. For historical data.
8. Board of education.
9. Transportation companies.
10. Chamber of commerce.
11. Building owners and managers associations.
12. Real estate organizations and trade associations.
13. Federal Government units.
    - A. Bureau of the Census.
    - B. Department of Commerce.
    - C. Securities and Exchange Commission.
    - D. Bureau of Labor Statistics.
    - E. Federal Home Loan Board.
    - F. Federal Housing Administration.
    - G. Postmasters.
    - H. Federal Reserve Banks.
14. Newspapers and their research departments.
15. Telephone company and power company research departments.
16. Merchants and residents.
17. The appraiser's records.
18. Auditor's statements.
19. Deeds, mortgages, and leases.
20. Building managers.
21. Publications.
    - A. Technical journals.
    - B. Trade and professional journals.
    - C. News letters of financial institutions.
    - D. Research organizations.

In gathering data, it is well to get the opinions and ideas of anyone who has some knowledge whereof he speaks. However, while the appraiser's attitude always should be one of open-mindedness, it is essential to differentiate between the reliability and accuracy of the various bits of information he obtains so that when he interprets the data later on, he will know how much weight to attach to its various elements.

OUTLINING THE DATA PROGRAM

Before starting out, the appraiser should know just what information he wants to assemble and what sources can supply it. Therefore, it is well for him to outline the information he needs to secure.

In some instances the nature of the problem confronting him for solution will indicate to him that certain data are important and others unimportant. For example, if he is dealing with a building approaching midlife or late life, he will realize that its replacement cost will not be of much significance. Therefore, he will not need to devote much attention to replacement cost data except in so far as they relate to building floor plan and layout and costs of repairs, maintenance, and replacements. The market price data relating to the site and to the preferences of the public will be important. The income and capitalization data will be most important.

If the case is one in which upon preliminary examination it is found that the property is not improved to its highest and best use, the market price data and income and capitalization data will be most important.

On the other hand, if a new building is involved and the preliminary survey discloses that it is suited to its site and surroundings, then all the data necessary in completing cost, market price, and income and capitalization estimates become of im-

portance. Or, if the case is one in which litigation is involved, the appraiser will doubtless wish to be just as fully posted as possible on all classes of data so that he will not be obliged to display ignorance under examination or cross examination.

Again, certain classes of data are more important in the case of one type of property than another. For example, if the property is a large apartment house, conditions existing in similar structures and prospective conditions which will affect supply of and demand for apartment accommodations of the type provided in the subject property, are considerably more important than cost and market price data, and the appraiser should devote special effort in assembling information bearing upon such conditions.

If the property is a business property suited for retail business, the apraiser will find it necessary to be thorough in assembling data upon which to predicate his opinion as to the possibilities of transacting business on the site, the kinds of business which could succeed upon it, the ones which would be most prosperous, and the prospects for holding or expanding the area from which customers would be drawn.

If the property were an office building, data relating to the existing amount of vacant office space of competitive character, the prospective supply which might shortly be brought into existence, and the rate of absorption of vacant space would be of special importance, as well as information regarding the costs involved in the operation, maintenance, and management of other office buildings in the community.

A brief discussion of the usefulness of the various data listed herein will prove of value.

Legal Description: Obviously, no appraisal can really be satisfactory in which the property appraised is not identified in such a way as to distinguish it from all others. The legal description enables such identification. It can best be obtained from the title abstract, policy, guarantee, or whatever evidence of title the owner has.

Title Data: It is ridiculous to think that an appraisal can satisfactorily be made without knowledge of the nature of the encumbrances, if any, which cloud the title to the property involved. Of course, the appraisal and report may be based upon the assumption that the property is free and clear of encumbrances, but this should never be done unless that is what is desired, or unless it is not possible to ascertain what encumbrances exist. To ignore conditions of title is just the same as ignoring other actualities, for example, like ignoring the absence of a building on the site and assuming that there is one upon it.

The appraisal relates to the value of rights—property rights—and should value the rights which exist. A right to enjoy the use and the benefits arising from use of a described parcel of real estate, free and clear of all claims of other persons, does not exist if there are encumbrances on the property. Encumbrances—restrictions, easements, reservations, rights of way, leases, tenants rights, tax and assessment liens, etc.—limit property rights and thereby affect value. It is, therefore, essential to know what encumbrances exist and to give effect to them in making the value estimate.

Site Characteristics and Value: Little need be said as to the necessity of having exact information concerning the location of the site; its shape, dimensions, proportions, topography, and soil characteristics, and public and private restrictions affecting its use. Some of this information is obtainable from the public records, some from the owner's deed, and some from personal inspection.

Building Improvements and Their Re-

placement Cost: It is quite apparent that a careful study must be made of the building involved in any case. This is necessary because (1) no intelligent conclusions as to the utility of the property can possibly be drawn without a knowledge of the physical, functional, and aesthetic characteristics of the building on the site, and (2) because it enables a description of the parcel of real estate as the appraiser found it and as he appraised it, a protection to him, perhaps, at a later date when his conclusions might be questioned.

Development and Other Indirect Costs: The acquisition of a site and the erection of a building on it involve costs—"indirect costs"—other than the purchase price of the land and the payment for labor expended and materials used in erecting the building. Furthermore, the reproduction of an already operating property involves more than acquisition and construction costs, for there are initial costs—"development costs"—of bringing the completed but unoccupied building to a status of occupancy equal to that existing at the time of appraisal. If the project is happily conceived and executed so that value and cost are equivalent, these indirect and development costs become portions of the value which must be recovered from income during the economic life of the structure.

In estimating development costs, data regarding rates of agents' commissions, advertising, and rate at which space in other like buildings has been absorbed must be assembled.

City Data: This is a class of data which the appraiser uses over and over. He does not gather such information anew for each assignment. He accumulates it from day to day. Much of it he uses almost unconsciously in interpreting other data assembled by him. Of course, in specific cases some of the city data must be specially studied, and if detailed information is not on hand, it will have to be obtained. For example, in the case of an office building or apartment property, special attention is necessary to the gathering of data regarding what has been designated in the foregoing as the "City Pattern" and of data which, when analyzed, will reveal existing trends or the prospect of changes in the city pattern.

Furthermore, in the case of a business property, population data are of especial importance. A business property, unlike an apartment building, may serve an ever-increasing number of people. Therefore, population increases may be very significant if the appraisal concerns that type of property. Of course, mere figures on the city-wide growth of population may mean nothing favorable in the case of a particular property, as, for example, in the case of a business property in an outlying center. Such a property will benefit only from a population growth in the district which it serves. Thus, the various types of data must be broken down into significant classes which are useful in estimating the utility and prospects of the specific property under consideration.

Neighborhood Data: Data relating to the immediate environment of the property under appraisal are of considerable importance. In the case of a business property, the business district constitutes its environment. This district may be very small as in the case of an outlying business center, or it may be very extensive, as in the case of a central business district. The appraiser must be very thorough in gathering neighborhood data, for such data may be more important than matters pertaining to the physical property itself. This may be true because the usefulness of the property, while limited by the nature of the building, is still more influenced by forces external to it.

Neighborhood data are classified above as physical, social, and non-physical. All these data must be assembled in the case of appraisals of income-producing real estate, for they are of vital importance in drawing conclusions as to future prospects. They directly affect the amount of income currently obtainable and form a basis for estimating the probabilities with regard to the durability and stability of income in the future. Of special importance, if a business property is involved, are the social data relating to the neighborhood. The number, characteristics, and history of residents of the district from which customers can be drawn, the nature of merchants and business catering to these people—all must be carefully ascertained and studied. Much of the information is obtainable by personal inspection and observation in the neighborhood, while some is found in census reports and other reports of statistical surveys conducted by private and public bodies.

Real Estate Market Data: The importance of market data is too well-known to require exposition. It is well to point out, however, that the scope of the data goes beyond the mere collection of sales price data. It is highly essential that conditions environing sales transactions be ascertained, as it is not possible to draw reliable conclusions without such information. Furthermore, since the use of sales data and listings and offers involves the making of almost innumerable comparisons between details of the properties involved and the property appraised, care must be taken in ascertaining public preferences. The appraiser should not be backward in obtaining expressions of opinion from others. However, he must always remember that he cannot blindly accept opinions of others or information supplied by them. He must assemble an adequate supply of data from which to judge the correctness of such opinions and information.

Income and Capitalization Data: The need for a most thorough effort in assembling income and capitalization data in appraising income-producing properties is obvious. The accuracy and reasonableness of the appraiser's income estimate depend upon his thoroughness in assembling these data and upon the intelligence he uses in interpreting them.

Income Data Regarding the Property: First are the income data relating to the property itself. The terms and conditions of all tenancies must be ascertained from existing leases and rental agreements. The records of past income must be examined to discover what vacancy and collection losses have amounted to and to discover the trend of income for the property. These records must also be examined to ascertain the items and amounts of operating, maintenance, replacement, and management costs in the past.

Income Data Regarding Other Properties: Besides obtaining income and outgo data concerning the property under appraisal, the same information must be secured for other properties of like character. It is fair to assume that the experience of one property will be like that of other properties equally well situated and of the same, or approximately the same, size and kind. Thus, the rentals obtained for apartments in one building are useful in estimating the rental value of similar apartments in other buildings. Likewise, the rentals paid for store space in one building will, in some cases, indicate what rental may be expected for other store spaces in the same district. However, in no instance should it be blindly concluded that actual rental paid is conclusive evidence of rental value. Rentals paid depend to some extent upon the circumstances of landlord and tenant at the time

the tenancy agreement is made and upon the conditions of supply and demand existing for the time being.

If these circumstances or conditions are extraordinary or unusual, a rent may be agreed upon which is more or less than a fair rental at the time; and, in any event, even if the rent is fair at the time it is agreed upon, it may not be the fair rental value at a later date, though it may still be in effect because of a lease which fixed the rental for a period of time. Furthermore, in the case of store space, great differences in ability to command rent can exist for different sites within a few hundred feet of each other. Thus, a store close to an important entrance of a large department store may be very much more valuable rental space than the area provided a couple of hundred feet away, or on the opposite side of the street. It is plain that the habits of the buying or renting public and public preferences for patronizing certain locations are important data because they play such a large part in the interpretation of income data.

In the case of apartment rentals, sometimes concessions are given in the nature of free rent for a time at the beginning or end of the lease term. Effort must be made to discover conditions of this kind so that the data relating to actual rentals paid may be properly analyzed.

Another matter which must be remembered is that apartment rentals vary not only with excellence of location, design, and so on, but also with varying conditions of tenancy relating to payment for water, gas, light, and power.

In short, it is true that not only must information be gathered relating to actual rentals, but it is essential also to assemble other data which will enable determination of the reasons *why* these rentals are being paid. This is equally true with regard to data relating to outgo. Income and outgo data for different properties are compared in order to discover items which do not seem to be reasonable. When one item is out of line with other like items, the cause of the condition needs to be found out so as to determine whether that item shall be used or modified. Furthermore, the cause may lead the appraiser to make other important discoveries. For example, an unusually heavy cost for heating fuel may result in discovering that the heating apparatus needs overhauling or that the building is poorly insulated. A large vacancy loss may result in the conclusion that one particular type of apartment in a building is poorly planned and should be remodeled. A heavy cost for repairs might indicate the need for early replacements or may have been due simply to some unusual condition not likely to recur.

In gathering data regarding income and expenditure, the appraiser should not stop with information covering one year only. He should trace the history of income and disbursements back through the past. One single year's experience is an unsatisfactory base upon which to build conclusions. Many years' experience, if characterized by consistent relationships, may be excellent material for use in estimating what the future is likely to bring forth.

Data Regarding Supply of and Demand for Like Accommodations: It is very important to obtain sufficient data regarding supply and demand conditions so as to have a good basis for estimating the probable trend of future occupancy and rental value. In the case of store property, it is a simple matter to gather occupancy statistics. It is not so easy in the case of office and apartment buildings.

Office building managers generally have such information and sometimes will share it. Building owners and managers associations frequently have data on condi-

tions in individual cities as a whole, and while these can usually be obtained, their usefulness is limited to some extent as they may not give the picture relating to particular types (as by age, size, rental value level, etc.) of office buildings. Notwithstanding difficulties in the way of securing reliable and adequate data, the effort must be made nevertheless. Personal inspection and observations made in walking through the floors of office buildings will enable some kind of an estimate which, though poor, will be better than an outright guess.

In the case of apartment buildings, supply and demand data may be obtained from apartment house owners associations where these exist. Apartment house managers and rental agents are sources of information. Here again, distinction must be made between various classes of apartment properties. An oversupply of apartment accommodations at one price level may exist while an undersupply at another level exists; or an oversupply may be found in one area and not in another. The important data always are those relating to competitive properties.

Supply data relate not only to existing supply but to prospective supply through erection of new buildings or population losses or shifts. Likewise, demand data relate to both current demand and prospective demand. Prospective supply would be indicated by data relating to buildings under construction or announced for construction, and also by population data relating to trends of migration and vital statistics. Prospective demand would also be indicated by such population statistics and by data relating to family purchasing power in the apartment district or in the trading area upon which the commercial property is dependent for its continued use.

Economic Life Data: Data relating to economic lives of buildings concern not only the actual lives of structures in the past but also qualities of structural durability and functional excellence, neighborhood stability and protection against adverse influences, land value trends, and intensity of other forces, which cause obsolescence. Available data upon which to found estimates of economic life are admittedly faulty and insufficient, but the necessity for making such estimates cannot be avoided. As much data should be assembled as it is practically possible so that the estimate will be as well founded as possible.

A few investigations have been made of the actual physical lives of buildings in the past, such as those of the National Association of Real Estate Boards and the Bureau of Internal Revenue of the United States Treasury Department. These have carried large weight in shaping the concensus as to spans of economic life. Though accuracy be impossible, consistency as between one case and another and reasonableness in all cases can be attained.

Thus, a building of better structural standards may be assigned a longer physical and economic life than a poorer one, provided economic forces are not expected to result in terminating its economic life prematurely. Economic forces, rather than physical ones, have been more potent in the past in fixing the limits of economic life. Therefore, neighborhood data and information relating to the possibility of intrusion by non-compatible uses or users must be assembled as an aid to estimating economic life.

It should also be pointed out that in appraisal work economic life estimates need only to be of a character acceptable to well-informed investors as a basis upon which to determine investment action; more than this cannot be required or expected.

Capitalization Rate Data: This class of

data is of very broad scope. It embraces data in the realms of finance, business, industry, trade, commerce, credit, production, consumption, government, economics, and mathematics. Of special significance are capitalization rate data deduced from analyses of sales transactions involving various types of real property.

The Appraiser's Files: Data already used in other appraisals and found in the appraiser's files should not be overlooked, especially capitalization rates, income, and operating expense data, and value estimates of similar properties.

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The Use of "Standards" in Appraisal Practice

By R. M. FISCHER

IN translating a given set of facts regarding conditions and past operations of an existing income property into an estimate of reasonably anticipated future revenues and operating costs, the appraiser is often tempted to use as the simplest solution a mathematical projection of average past experience. Such a method recommends itself to the viewpoint of the accountant, the banker, and, in general, to those having a broad but non-technical understanding of the nature and significance of operating records.

It is the consideration of basic and comparative standards of performance applied to facts gathered through personal observation and analysis, supported by technical knowledge, which distinguishes the conclusion of the appraiser from the non-technical judgment of the accountant or banker.

"Standards" are defined as the average, established measures or gauges of extent, quantity, or cost under satisfactory performance; they include two groups of different character:

1. *Comparative Standards* are analytical ratios developed through experience and based upon a common unit of comparison for a number of similar properties. For instance, various classes of expense, such as payrolls, fuel, or "house profit," may be stated as percentages of theoretical gross revenue, equal to the 100 per cent rental schedule or a "normal" portion thereof. Inasmuch as these ratios are necessarily averages of the actual experience of a number of properties operating under more or less different conditions, their application without sufficient knowledge of the sources, nature, and surrounding circumstances of these "comparative standards" may easily lead to erroneous conclusions in regard to a particular property or situation.
2. *Basic Standards* are synthetic measures of reasonably satisfactory performance for given tasks or services. They are generally presented for practical application as mathematical rules or formulae, which range from simple "task standards" (for instance, the number of square feet of floor surface which may be cleaned by one person in an eight-hour shift) to the more involved formulae used in determining the amount of fuel required for heating a structure of given size, exposure, type of insulation, location, and possibly other variables entering into the calculation.

The use of "basic standards" of performance, although more time-consuming, is preferable in any estimate where the more detailed factual information required in their application is available. Their use is a necessity in any sound, scientific estimate of projected new properties, which have no historical records of past performance, and also in all instances where future conditions under a changed plan of operation deviate materially from the past or present status.

Operating costs in an apartment house, in which apartments with a large number of rooms are to be spit up into several smaller rental units, will show considerable change which cannot be determined accurately from average experience ratios of other buildings; they are unlikely to reflect truly similar conditions.

Standards of performance are the direct concern of management, regardless of their application to appraisal problems. In any well-managed property, a detailed annual budget will be found, which furnishes the best source of informed opinion for the normal operating prospects of the enterprise. It should, therefore, receive careful consideration by the appraiser in any estimate of future costs and revenues. Furthermore, comparison of past budgets with actual records of performance yields a measure of the efficiency of management

or a warning sign for investigating sources of discrepancies, although their causes may still persist—such as changes in salary or wage rates during the budget period, increased tax assessments, utility service rates, etc.

Comparison of successive budgets will further indicate to what extent these standards represent satisfactory performance. If costs for window washing are increased, better efficiency may be derived from change in contractor, methods of compensation of building employees, or technical improvements in layout, etc.

HAZARDS AND VARIATIONS TO BE CONSIDERED

Obviously, no two income properties are truly similar in operating character, due to the numerous variable influences of location, climate, local customs, and standards of service; layout, construction, and condition of property; and, finally, ability and financial resources of management and ownership. Yet these fundamental differences are frequently disregarded in arbitrary applications of comparative "rules of thumb." Valuation at eight, ten, or twelve times gross rental revenue for various types of properties is but one example of "curbstone appraisal practice" based upon arbitrary comparison.

One of the outstanding factors which fails to be reflected properly in most experience ratios is the intensity of utilization. This is commonly measured by occupancy percentages for floor space or for other operated departments, such as restaurants or concessions in hotels, etc., in per cent of "normal revenue." Low utilization raises the relative proportion of inflexible "overhead charges" which cannot be correspondingly reduced; taxes, fuel, and other building services, maintenance, and other elements of cost are affected to a variable degree. Depreciation generally tends to be accelerated by prolonged periods of low utilization.

Most experience ratios are based upon either 100 per cent utilization or some average obtained in certain locations and for a given period of relative prosperity or depression, as the case may be. Adjustments for deviations from the hypothetical basis—if the background and the sources of the rule are known — are different, inasmuch as the proportion and breakdown of inflexible elements in the "average" costs of property operation are generally unknown.

For example, such an experience ratio may show a cost of light and power at $0.03 per square foot of gross area in an office building. Unless the standard of service is materially reduced or entire floors can be shut off, the elevator service schedules, which require the bulk of energy consumption in most buildings, will be maintained close to conditions at full occupancy. Therefore, the comparative standard per unit of rented area increases substantially as occupancy decreases.

Similar observations apply to payrolls, since there is generally an irreducible minimum of personnel requirements. Compared with other business enterprises, income properties suffer particularly from the large proportion of inflexible elements in their total operating costs, especially taxes and other "fixed charges," which make the application of comparative standards particularly difficult and dangerous.

The condition of the property as to arrangement or layout, controlled by the shape of the lot and orientation, may affect the comparability of operating standards materially in respect to cleaning and heating costs. *Standards of service* control the number of employees as

well as the cost of maintenance. The character of tenancy, the average turnover, and the average size of occupied space will seldom be similar in two properties, although these factors greatly affect the relative cost of management and fixed charges. Age and remaining life expectancy are important considerations in applying comparative standards, since obsolete equipment may increase competitive operating costs substantially.

The most valuable comparatives always have the closest specification or definition of duties or services, and therefore a more restricted application. A generalized ratio of the gross margins of profit before depreciation for apartment houses in Illinois over a five-year period is interesting information but of little, if any, significance in a specific study. However, the ratio of heating, power, and ventilating expense to the usual, scheduled revenue at 100 per cent occupancy for six-story, elevator apartment houses in Chicago for a recent year may have pertinence in appraising such a structure in that location, especially if the cost of fuel and utility rates, from which the ratio was derived, are known.

The interpretation of differences revealed by comparisons is the essential test of the skill, experience, and judgment of the trained appraiser. The surest way to acquire this background is by way of accumulation and development of comparative standards based upon data from his own practical work, because he will then be thoroughly familiar with the range and applicability of these data. This accumulation requires selection and specialization, since no individual can hope to cover effectively the field of classes, types, and districts and the character of various income properties.

COMPARATIVE STANDARDS

The number and form of comparative standards in practical use in connection with the operation of income properties are so great that we shall attempt no more than to describe their character, sources of compilation, and reasonable range of application.

Comparative standards may be classified into three main groups in accordance with their denominator:

1. *Unit cost or revenues* use as a basis the area, cubical content, number of available or occupied rooms or apartments, seating capacity in theatres or restaurants, number of employees, meals served, etc.
2. *Percentage ratios or multiples* are frequently related to scheduled revenue at 100 per cent occupancy, and also to actual or net revenue. Where operating records are subdivided, such as in office buildings, which are partly owner-occupied by banks or other large and important tenants, or in hotels, into room, food, and various service departments, the ratios may refer to departmental revenue or to the relation between department revenues and expenses; for instance, in a particular hotel the food revenue may be thirty-five per cent of total revenue and ninety per cent of room revenue.
3. *Trend indices* are percentage ratios relative to corresponding operating results, unit costs, revenues, or occupancy percentages for successive or fiscal periods. They apply to a particular property, a department of the entire business, or the average performance of a group of properties. Such indices show the decrease or increase in gross revenue from rentals or in revenue per square foot of rented area to indicate the trend of rental "price levels," or the average price of real estate bonds of large office buildings in a city from year to year, or month to month if seasonal influences are important. A series of such index percentages may be coordinated by reference to a base period, generally a peak year of most satisfactory performance. Trends are often presented in graphic or chart form, which assists in their interpretation and critical analysis. In this manner several trends can be visualized and mentally coordinated in the most efficient manner. A chart showing simultaneously the growth of population, number of available and occupied rooms, dwellings, or apartments, and assessed value in a given city is more informative at a glance than several pages of individual tables stating the identical data numerically.

If the full benefit is to be obtained from

trend charts, the common practice of suppressing the "zero" or base line by shortening the vertical portion should be avoided. This is done frequently, either to save space or in some cases with deliberate intent to magnify an existing up-trend or other fluctuations. If such presentation is unavoidable, the fact of the suppression should be clearly indicated.

Care should be exercised in the selection of the "base period," especially where several trend lines are coordinated. A wrong impression can easily be created by using a year of unusually favorable or unfavorable results, reflecting non-recurring influences. For instance, hotel occupancy and profits in Chicago during the World's Fair years are hardly a normal basis for comparing results of other years. Averages over three or five-year periods are preferable because they automatically eliminate or soften the effect of non-recurring influences or events.

Each of these comparative standards has a special field of limited usefulness; it is essential in their application to understand clearly the basis and source of their background. It is often found that "dollars per square foot" or "dollars per cubic foot" may mean very different things, depending upon how the units of measurement are defined and computed. "Net area" may be gross area less basement area, or gross area less public and service spaces, or even gross area less walls, shafts, and corridors only.

"Cubic feet" may be variously measured where pitched roofs, wall projections, porches, or other irregular contours are found in the buildings. The standards of measuring the number of rooms vary greatly between cities; in New York and Chicago refinement in late years has gone beyond the "½ room" to the "¾ room," and in many cities standards such as "2½ room efficiency" are in common use. Accordingly, comparatives which are based upon averages per room in various cities are of little significance unless the key to the room number count is available.

The application of unit revenue or cost comparative is often handicapped because of obsolescence of the data, which at best are generally one or two years old. Some of the best building operating data are compiled under the auspices of national associations, but they usually give national averages which are not sufficiently broken down as to type and size of operations to insure their applicability to a given property or situation.

It would be difficult to evaluate, for instance, the effect of a ten per cent increase in the price of fuel on the heating cost of a ten-story apartment building, since the proportion of fuel to total heating cost, including payrolls, salaries, and other supplies and materials, may vary greatly between the "average" property to which the statistical costs refer and the particular apartment house under appraisal. Large deviations in operating results necessarily require investigation of their causes, and to that extent comparative unit costs are of value in analytical studies.

Percentage ratios, as published in many trade papers, frequently form a valuable background for investigation of operating efficiency. Where the payroll expense is an unusually large percentage of revenue, the competitive level of salaries paid and the division of duties should be investigated. High management costs and fixed charges will easily become apparent and call for explanation or discounting in an estimate of "normal operations."

Trend indices are generally valuable in checking on the competitive status and performance of properties. If profits in an income property decrease at a time of general business depression, they may be expected to come back with local or national recovery. A divergency of trends indicates either defects in the property itself, non-conformity with neighborhood trends and obsolescence, etc., or the effect of mismanagement.

The segregation of "flexible" and "in-

flexible" elements of cost will assist in isolating the causes of changes in conditions of property through trend analysis. A sudden increase in maintenance cost over the average of a number of years may indicate expenditures for "deferred" maintenance during the prior period—since they are more or less "flexible." The changes in unit revenues may be compared with the corresponding change in flexible operating costs to find what portion of additional rentals or losses from expired leases will be transferred into gross operating results.

Table I serves as an (over-simplified) example for an office building with a 100 per cent rental schedule of $160,000 per annum.

TABLE I

Year	1933	1934	Per Cent of Increase Over 1933	1935	Per Cent of Increase Over 1934
Occupancy (%)	50%	62.5%	—	75%	—
Revenue	$80,000	$100,000	25%	$120,000	20%
Expense—Flexible	16,000	20,000	25%	24,000	20%
Fixed	35,000	35,000	—	35,000	—
Gross Profit before Depreciation	29,000	45,000	55.1%	61,000	35.5%
In Per Cent of Actual Revenue	36.3%	45%	—	50.8%	—
In Per Cent of 100% Rental Schedule	18.1%	28.1%	—	38.1%	—

Of course, even the "flexible expense" has an irreducible minimum as long as the property is kept in service; in this instance the minimum would be found at about $10,000. Accordingly, a minimum revenue of $45,000, equal to an occupancy of around twenty-eight per cent, would here be required to avoid actual losses to owners, before considering depreciation charges.

The determination and segregation of flexible and fixed portions of operating expense is essential in judging the effect of prospective variations in revenue on earning power. The period of occupancy at which an income property will "break even," i. e., cover direct operating expenses, fluctuates widely in accordance with the rate and rental schedule, type of service and leases, compensation of employees and management, building service contracts, etc. An apartment house which will not cause losses at sixty per cent occupancy is preferable to one which requires eighty per cent occupancy to cover "out-of-pocket expense" from the point of view of the investor.

The technique of determining the degree of flexibility in a given property consists largely in a detailed separation of all elements of expense into fixed minimum requirements and the variable portion, the amount of which is controlled by intensity of utilization. The analysis of relative results during successive periods of variable occupancy may be the best available indication, but the resort to "basic standards" is preferable.

Graphic presentation is often helpful in determining the various "critical operating points" at which losses are avoided, bond interest or a given return on investment is earned, etc. This is ascertained by the intersection of the curves with the ordinates for the particular percentage of occupancy.

The comparison of potential performance under fluctuating conditions of reve-

nue and expense is the most valuable contribution to operating analyses which may be gained from trend data, especially where data of performance for similar properties in the location are available.

BASIC STANDARDS

Comparative standards can generally be analyzed as the result of the multiplication of a quality factor by a quantity, such as unit cost times the number of measured units: for instance, a rental payment may be $1.75 per square foot of rentable area for 6,800 square feet of space occupied under the lease; or a payroll of $100 average monthly wage for twenty-five men employed under that scale.

Basic standards are not concerned with dollar amounts, rates, nor unit costs but with the measure of technical or physical, numerical requirements under satisfactory or average performance. They represent, therefore, the basic source material for any scientific forecast of future performance derived from an inspection and study of the property and its operating standards, rather than an analysis of records of past events. Wherever time, available records, and funds permit, this type of forecast is preferable to any comparative projection of past performance, although the latter may be used as a check on the soundness of the "basic" method through application of current rates, unit costs, etc.

The following quotations serve merely as typical examples of desirable forms of basic standards for cleaning and heating in office buildings, inasmuch as it is not possible within the scope of this discussion to give any exhaustive treatment to the very wide field of existing basic data of an engineering character applicable in various parts of the country and to different classes of properties, especially if the duties covered are adequately and specifically defined.

BASIC CLEANING STANDARDS FOR OFFICE BUILDINGS

Janitors and Cleaners

Influences to be considered are:

1. Standards of cleaning as to frequency and type: scrubbing, mopping, dusting, vacuum cleaning, etc.
2. Area to be cleaned in square feet:
   - A. Tenant space.
   - B. Public space, segregated into:
     - Corridors and lobbies.
     - Stairs.
     - Public Rooms.
     - Toilets, washrooms, service areas, etc.

Labor rates, number of working hours, and efficiency vary greatly in different cities.

The proportion of work performed under outside contract and by building employees is largely a matter of competitive local conditions, type of ownership, and management policy. This affects to some extent the standard of service, since the frequency of cleaning is generally specified under outside contracts, whereas building employees' time may be spent for other duties under emergencies, particularly in buildings without sufficiently large personnel to permit specialization of duties.

A *service superintendent* is generally found where the cleaning force exceeds sixty employees.

Day janitors take care of the cleaning of public spaces, polishing brass, iron, and marble, replenishing supplies in public rooms, etc. This requires one man per 25,000 to 40,000 square feet of rentable area, depending upon the relative size and character of corresponding public spaces. (This is equivalent to a range of a unit cost of from three to four cents per square foot of rentable area, depending upon wage scales, etc.)

Night janitors act as supervisors for the cleaning force of dusters, scrub women, sweepers, etc. The normal task

in square feet per hour depends to some extent upon the use of scrubbing and polishing machines and other mechanical help.

TABLE II

NORMAL TASKS PER HOUR

Scrubbing Machine
1 man—2000 square feet
Hand-mopping Corridors
1 man—1500 square feet
Cleaning General Space
1 night man—700 to 900 square feet
Sweeping and Cleaning
1 night woman—850 to 1050 square feet.
Scrubbing, Sweeping, and Dusting Furniture
1 woman—700 to 750 square feet
Scrubbing Stairs
1 woman—600 to 650 square feet
Scrubbing Toilet Space
1 woman—700 to 750 square feet
Polishing Brass and Cleaning and Sweeping Two Elevators
1 woman

Window Cleaning: The size of windows in office buildings is generally eighteen to twenty-one square feet of glass surface; nine to ten average, wood sash, double hung windows can be cleaned per hour by one cleaner. This equals 800 to 900 windows twice a month by one cleaner working eight hours per day. Steel sash windows require ten per cent additional time. Tilting, balanced equipment saves thirty to forty per cent of time. Generally, one washer is required for 70,000 to 80,000 square feet of net rentable area.

As a unit cost, window cleaning ranges from nine to twelve cents per window, depending upon conditions of accessibility and outside competition. This equals on the average from 1.9 to 2.5 cents per square foot of net rentable area. Cleaning supplies average from three per cent to four per cent of labor cost for cleaning, at an average unit cost from .8 to 1.2 cents per square foot of net rentable area.

The use of technical formulae in *basic standards* is illustrated in the following discussion of *building heating costs.* The essential variables are the building content, the exposed surface, geographical location (difference in mean temperatures), building construction, and orientation. The methods of computing standard requirements apply either to square feet or cubic feet in the building or square feet of radiation. The term "square feet of radiation" is defined as the emission of 240 BTU's (British Thermal Heat Units) *per hour,* as applied to vapor, vacuum, and steam heating systems; it refers to "net" or "installed" radiation, making no allowance for the effect of piping. Where this information is available from the building specifications or heating contractor or can be determined by inspection, it is the preferable basis, because it automatically reflects the influence of all the variables mentioned hereinbefore.

The *Mills rule* determines the required square feet of radiation for a steam heating system by adding three elements:

1. One-half the exposed glass area—in square feet.
2. One-twentieth of the exposed glass area—in square feet.
3. One-two hundredth of the cubic contents—in cubic feet.

Where the air is changed frequently, through doors and windows, increased radiation up to twenty per cent of the standard may be required for leakage losses.

The *Baldwin rule* reflects, besides the exposure elements, the climatic influence and the steam temperature factor. This formula gives the square feet of radiation per square foot of exposed glass surface (ten square feet of wall surface equivalent to one square foot of glass) to be computed as the difference between inside and

outside temperatures in Fahrenheit degrees, divided by the difference between steam temperature and inside temperature. For an inside temperature of seventy degrees and zero outside, this results in the following:

$$\frac{70° - 0°}{212° - 70°} = \frac{70}{142}$$ or around ½ sq. ft. per equivalent glass surface.

Up to twenty per cent should also be added for leakage losses. The results of this rule closely approximate those of the Mills rule in most cases. Additional allowance from ten to fifteen per cent should be made for northern and western glass exposures.

Hot water heating increases radiation requirements from forty to sixty-five per cent, depending upon effective water temperature and the system of regulation in use.

The cubic foot method of estimating heating requirements in pounds of steam is not as accurate, because it does not reflect the specific conditions of the particular building, unless extensive data by types of buildings in the location are available from central heating plants, consulting engineers, or heating contractors.

As examples of such data, the following average steam consumptions for various types of buildings applicable to New York City are shown in the following table.

TABLE III

Type of Building	Pounds per Sq. Ft. Radiating Surface	Pounds Per Cu. Ft.
Office and Bank	640	2 to 5
Hotels	582	10 to 12
Apartments	550	6 to 10
Retail Stores and Theatres	403	2½ to 5
Residences	368	
Churches	221	
Fire Departments	1091*	

*Frequently wide-open doors.

The wide spread between building types is due to the difference in temperature to be maintained and the number of heating days per week. Commercial buildings usually require no heat on Sundays and holidays and residential temperature level only during twelve out of twenty-four hours per day.

The unit cost of steam per pound varies with the type of fuel and efficiency of the heating system; a survey by the Anthracite Institute in Philadelphia in 1931 covering 103 apartment houses showed that the cost of oil heat was materially higher for similar types of buildings, with about equal cost of labor for attendance under the price relation of oil and coal then prevailing.

The information for this survey was obtained from the owners and managers of apartment houses and operating personnel. Figures for a square foot of radiation and other plant data were taken from building plans and checked against actual installations. Where such information was unavailable, the actual installed radiation and boiler room equipment were measured and itemized. Data on fuel consumption were obtained from boiler room log books and fuel merchants' delivery records. The amounts of fuel used for heating and service water were allocated upon the basis of average percentages found in those apartment houses where they were separately recorded. Therefore, the information is specific and valuable, because upon the basis of the given data the same may be used through proper adjustments under very widely differing operating conditions in other cities, etc.

The average fuel consumption was as follows:

Fuel oil burning—gallons per square foot of radiation:

Heating—4.2 to 8.4 gals., average 6.3 gals. at a cost of $0.312.

Hot water—1.8 to 3.6 gals., average 2.7 gals. at a cost of $0.135.

Coal burning—pounds per square foot of radiation:

Heating—34.3 to 99 lbs., average 66.6 lbs. at a cost of $0.229.

Hot water—30 to 43 lbs., average 36.5 lbs. at a cost of $0.051.

The spread between general averages of consumption and those of the ten most economical plants was found to be twenty-five to thirty per cent.

A comparison upon a "per room" basis showed an average of 222 gallons of fuel oil and 2,292 pounds of coal for heating, and 85.5 gallons and 507.5 pounds respectively for hot water.

The quoted unit costs were based upon five cents per gallon of oil and $7.00 per net ton of anthracite coal; a change in the ratio of these costs occurs periodically with the trend presently toward an advantage in coal.

Hot water supply required twenty per cent of total fuel consumption where coal was used, as against thirty per cent for fuel oil. Normal hot water storage requirements were found to be forty gallons capacity per bathroom, with actual installations showing a range from seventeen to forty gallons, an average of 28.5 gallons.

The average heating season was found to be 210 days at seventeen hours per day.

For houses outside of the city limits, the charge for ash removal varies from $.60 to $.90 per cubic yard. One cubic yard of ashes results from the combustion of 3.36 net tons of anthracite, other types of coal showing lower ratios.

As a conclusion, the survey stated that the heating labor costs in an apartment house depends upon the size of the building entirely, regardless of the type of fuel used.

The basic standards for heating have been extensively quoted for the purpose of demonstrating the type and detail of information required in an estimate from "basic standards." Where time and fees do not permit exhaustive, detailed computations and assembling of the property data, which are necessary as a starting point, the use of comparative data represents a shortcut but not a full substitute for the more scientific and provable estimates.

APARTMENT HOUSE EXAMPLE

The steps required in an analytical study of operations through the use of comparative standards is illustrated in the following example. The subject is the hypothetical, six-story, fireproof apartment house, the "Belleview," which has 290 furnished rooms and a gross area less basement of about 100,000 square feet. The building furnishes free maid and switchboard service, also dishes and linens. The count of available rooms is based upon the following key schedule which disregards bathrooms:

One transient hotel room	1 unit
One room with Pullman kitchen	1¼ units
One room with kitchenette	1½ units
One room with kitchenette-dinette	2 units
Two rooms with Pullman kitchen	2¼ units
Two rooms with kitchenette	2½ units
Two rooms with kitchenette-dinette	3 units

As stated above, halls, vestibules, and outside walls are included in the area; the computation represents simply the ground area multiplied by the number of stories above ground.

The purpose of the analysis is to prepare a segregation of "direct" operating expenses, as distinguished from maintenance, repairs, and replacements, thereafter to compare the status of operations of this income property with others in the district and to prepare a forecast of future expenses under variable assumed conditions of occupancy.

The operating data shown in Table IV,

TABLE IV

Year	1933		1934		1935	
	Per Year	Per Room	Per Year	Per Room	Per Year	Per Room
100% Rent Schedule	$162,954	$561.91	$128,162	$441.94	$118,738	$409.44
Occupancy (Actual)	70%		65%		74%	
Effective Gross Income	$114,068	393.34	$ 83,305	287.26	$ 87,866	302.99
Effective Gross Income per Day	313	1.08	228	.79	241	.83
Operating Expense						
Payrolls						
General—Clerks, Telephone Operators, etc	25,601	88.27	20,496	70.68	20,512	70.73
Janitor Dept	6,785	23.40	5,679	19.58	5,476	18.88
Repairs and Decorating	2,187	7.54	1,977	6.82	3,527	12.16
Total	$ 34,573	$119.21	$ 28,152	$ 97.08	$ 29,515	$101.77
Building Services						
Electricity	7,843	27.04	7,825	26.98	8,523	29.39
Water	1,041	3.59	1,025	3.53	1,011	3.48
Fuel	5,557	19.16	5,270	18.17	5,833	20.11
Ash Removal	495	1.71	348	1.20	220	.76
Electric Bulbs	370	1.28	413	1.42	358	1.23
Gas	1,217	4.20	1,333	4.60	1,376	4.74
Miscellaneous	236	.81	151	.52	260	.90
Total	$ 16,759	$ 57.79	$ 16,365	$ 56.42	$ 17,581	$ 60.61
Maintenance—Public Spaces						
Repairs and Replacements	3,730	12.86	3,428	11.82	5,653	19.49
Decorating Materials	825	2.84	751	2.59	1,128	3.89
Supplies—Maintenance	200	.69	335	1.16	267	.92
Elevator Repairs	689	2.38	469	1.62	515	1.77
Miscellaneous	303	1.04	100	.34	487	1.68
Total	$ 5,747	$ 19.81	$ 5,083	$ 17.53	$ 8,050	$ 27.75
Cost of Occupancy						
Replacements—Furniture, etc	1,472	5.08	1,307	4.51	2,695	9.29
Laundry	4,052	13.97	3,198	11.03	4,342	14.97
Exterminating	118	.41	123	.42	53	.18
Cleaning and Repairing—Outside Service	893	3.08	603	2.08	966	3.33
Miscellaneous	1,098	3.79	572	1.97	530	1.83
Total	$ 7,633	$ 26.33	$ 5,803	$ 20.01	$ 8,586	$ 29.60
Total Operating Expense	$ 64,712	$223.14	$ 55,403	$191.04	$ 63,732	$219.73

as obtained from the annual audits, exclude all fixed charges and administrative expenses.

Certain expense accounts are logically considered to form part of maintenance, repairs, and replacements. After investigation of current accounting practice the following segregation is adopted:

Payrolls: repairs and decorating—forty per cent of janitor's department.

Building Services: electric bulb replacements.

Maintenance: public spaces—entire group.

Cost of Occupancy: replacement of furniture and fixtures—fifty per cent.

The tabulations in Table V show the results of the reclassification of these accounts in accordance with these premises,

and further an analysis in *per cent of effective gross income* (taken at 100 per cent as a base for each year) and in *dollars per occupied room per year.*

TABLE V

Year	1933		1934		1935	
Effective Gross Income	$114,068	100.0%	$ 83,305	100.0%	$ 87,866	100.0%
Direct Costs						
Payrolls	29,672	26.0%	23,903	28.7%	23,798	27.1%
Building Services	16,389	14.3%	15,952	19.1%	17,223	19.6%
Cost of Occupancy	5,715	5.0%	4,194	5.0%	5,408	6.2%
Total Direct Costs	$ 51,776	45.3%	$ 44,049	52.8%	$ 46,429	52.9%
Maintenance and Replacements	$ 12,936	11.3%	$ 11,354	13.6%	$ 17,283	19.7%
Unit Costs per Occupied Room per Year						
Average Number of Occupied Rooms	203		189		215	
Direct Costs						
Payrolls	$146.17		$126.47		$110.69	
Building Services	80.73		84.40		80.11	
Cost of Occupancy	28.15		22.19		25.15	
Total Direct Costs	$255.05		$233.06		$215.95	
Maintenance and Replacements	$ 63.72		$ 60.07		$ 80.39	

These studies are then amplified by the appraiser's personal inspections and observations of the property and its operations, also compilation of comparative unit costs and percentages of other properties of this class in the neighborhood. These serve to indicate the trend of rates for building services, prices of materials, wages, and other factors entering into the explanation of the analytical data here presented.

Without going into the details and refinements of such a study and investigation, the facts and conclusions, which may be derived and which are considered pertinent to the establishment of a prospective statement of direct operating costs under variable occupancy, are herewith presented, together with certain factual data:

1. Management has been able to compensate for the reduction in occupancy and revenue between 1933 and 1934, which was caused by the conversion of a number of large apartment houses in the immediate vicinity from unfurnished to furnished service, by substantial savings in payrolls and tenants' occupancy costs. This is evidenced by the decline of nine per cent in direct cost per occupied room, exclusive of maintenance. The further reduction during 1935 merely reflects the effect of larger occupancy and correspondingly reduced proportionate, inflexible elements of operating costs.
2. Direct costs, in spite of these savings, represented a larger portion of scheduled gross income in 1934 than in 1933, due to the reduction in unit revenue. This trend has not been offset by the slightly better prices obtained for the year 1935.
3. The trend of cost of materials, fuel, and wages is slightly upward since 1934.
4. The standards of service have been substantially maintained in spite of the reduction in wages and personnel, but they are expected to be improved through better elevator service, more frequent garbage removal, and extension of switchboard service hours through regular operators. Maid service is also to be improved by closer supervision—an assistant housekeeper is to be employed. These changes will add to payroll expenditures but will be necessary in order

to justify the anticipated higher unit rentals, which the management expects to realize in the near future.

5. A comparison with other apartment houses shows that the operating costs for building services are normal, with the exception of fuel costs, which are expected to be decreased by the installation of a new boiler, a temperature control system in the public spaces, and repairs to doors and window weather strips.
6. Comparative operating standards for the "Belleview" apartment house and the range of experiences in similar properties for the year 1935 were found to be as shown in Table VI.

for variable occupancy, reflecting the trends and operating character of this property. A convenient presentation, which permits easy comparison with the assembled unit data, is shown in Table VII on page 391.

This analysis indicates that an increase of fifty per cent in gross revenue—from $80,040 to $120,060 — would cause additional direct operating expenses of only $6,450, or fourteen per cent of $46,050. The addition to the gross profit margin

TABLE VI

	Per Room per Year		Per Sq. Ft. per Year		In Per Cent of Scheduled Rental	
	Belleview	Others	Belleview	Others	Belleview	Others
Payrolls						
General	$70.73	$65.00–82.00	$ .205	$ .18– .28	17.3%	14.8–20.0%
Janitor Dept.	18.88	13.75–22.00	$ .055	.04– .09	4.6	3.5– 5.5
Building Services						
Electricity	29.39	21.00–32.00	.085	.066– .110	7.2	5.5– 9.0
Fuel	20.11	14.00–22.00	.058	.036– .084	4.9	3.2– 5.3
Gas and Water	8.22	7.50– 9.50	.024	.018– .030	2.0	1.8– 2.3
Ash Removal, etc.	1.66	1.00– 4.00	.004	.003– .005	0.4	0.2– 0.3
Cost of Occupancy						
Laundry	14.97	2.40–21.00	.043	not available	3.6	1.1– 4.7
Supplies, etc.	4.52	1.00– 7.50	.013	.008– .025	1.1	0.2– 2.0

The comparatives are intended merely to illustrate the example. They would apply only to this particular type of building and under the local prices and wages. The wide range in comparatives for the other properties of the class in various elements, such as wages, fuel, gas, and water, indicates the variable influence of different standards of service, location, construction, layout, and size of buildings. On the whole, the comparison supports the conclusions, as stated before, from general analyses and observations.

Upon the basis of the foregoing facts and conclusions, it is now possible to construct a hypothetical operating statement from this source would accordingly be $40,020 minus $6,450, equal to $33,570, or nearly forty-two per cent of the lower revenue.

OFFICE BUILDING EXAMPLE

This example serves to illustrate the use of basic standards as applied to the estimate of payroll costs for operation and maintenance for a projected office building. This refers to a structure actually erected in Chicago. The unit costs represent union labor rates prevailing in 1930.

The building has a gross floor area of 556,900 square feet and a net rentable

TABLE VII

Unit Rental per Room per Year	$ 460.00			
100% Rental Schedule	$133,400.00—Equal to $1.334 per Sq. Ft.			
Occupancy	60%	70%	80%	90%
Effective Gross Income	$ 80,040.00	$ 93,380.00	$106,720.00	$120,060.00
Payrolls				
General	21,600.00	22,000.00	22,800.00	23,500.00
Janitor Dept.	5,500.00	5,600.00	5,800.00	6,000.00
Total	$ 27,100.00	$ 27,600.00	$ 28,600.00	$ 29,500.00
Building Services				
Electricity	$ 7,650.00	$ 7,800.00	$ 8,000.00	$ 8,200.00
Fuel	4,350.00	4,500.00	4,650.00	4,800.00
Gas and Water	2,100.00	2,150.00	2,200.00	2,250.00
Ash Removal	250.00	250.00	250.00	250.00
Total	$ 14,350.00	$ 14,700.00	$ 15,100.00	$ 15,500.00
Cost of Occupancy				
Laundry	$ 3,200.00	$ 4,000.00	$ 4,800.00	$ 5,500.00
Supplies and Miscellaneous	1,400.00	1,500.00	1,750.00	2,000.00
Total	$ 4,600.00	$ 5,500.00	$ 6,550.00	$ 7,500.00
To al Cost—Direct	$ 46,050.00	$ 47,800.00	$ 50,250.00	$ 52,500.00
Analysis per Available Room per Year (290)				
Payrolls	$ 93.45	$ 95.17	$ 98.62	$ 101.72
Building Services	49.48	50.69	52.07	53.45
Cost of Occupancy	15.86	18.96	22.58	25.86
Total	$ 158.79	$ 164.82	$ 173.27	$ 181.03
In Per Cent of Gross Revenue				
Payrolls	33.9%	29.6%	26.8%	24.6%
Building Services	17.9%	15.7%	14.2%	12.9%
Cost of Occupancy	5.7%	5.9%	6.1%	6.2%
Total	57.5%	51.2%	47.1%	43.7%

area of 394,500 square feet. The total operating cost had been estimated through other methods at $546,400 per annum. The resulting unit costs have been computed in Table VIII (shown on page 392) as a matter of general information and for comparative checking purposes.

It is interesting to note that cleaning costs represent more than fifty per cent of the total building payroll expense if the window cleaning contract is included. Of course, these proportions would be radically different in a smaller building where elevator and power plant operations require a larger portion of the total costs.

The successful appraiser of the larger and more complex income properties must of necessity have a proper understanding of the "standards" of operating performance and their use in the appraisal process. His files must be constantly expanded with the accumulation of all possible data bearing upon operating performance, and the manner in which he adapts the data to his needs will measure to a large extent his ability and standing as an appraiser.

TABLE VIII

TYPICAL LABOR ACCOUNT FOR HOUSE OPERATION AND MAINTENANCE
(Taken from actual investigation of requirements and union labor costs)
LARGE, MODERN, CLASS "A" OFFICE BUILDING
Chicago, Illinois

Appraised Value: $7,500,000 — Contents: 6,310,000 cu. ft.
Class: A — Gross Floor Area: 556,900 sq. ft.
Erected: 1928 — Rentable Area: 394,500 sq. ft.

House Operation and Maintenance Accounts
(Labor Only)
(Total Operation Cost—$546,400)

House Operation Account	Annual Salary	Total by Accounts	Per Cent of Total		Cost per Sq. Ft. Rentable Area
			Labor	Operation	
I. Superintendent's Department					
A. Superintendent (1)	$ 3,600				
1. Assistant Supt. (1)	1,680				
		$ 5,280	3.15	.97	$ .0134
II. Cleaning Department					
A. Day					
1. Hall Men (3) at $1,500	4,500				
2. Marble Men (4) at $1,500	6,000				
3. Matron (1)	1,200				
		11,700	6.97	2.14	.0297
B. Night—Night Foreman (1)	1,620				
1. Night Janitors (6) at $1,500	9,000				
2. Scrub Women (60) at $860	51,600				
3. Elevator Operator (1)	1,600				
		63,900	38.10	11.69	.1619
C. Window Cleaning					
1. Contract Total		13,000	7.75	2.37	.0329
Total Cleaning Department		$88,600	52.82	16.20	.2245
III. Elevator Operation Department					
A. Starter (1)	$ 1,740				
1. Elevator Operators (15) at $1,620	24,300				
2. Relief Men (2) at $1,620	3,240				
3. Night Man (1)	1,680				
(One night man allocated to Cleaning Dept.)					
		$30,960	18.47	5.67	.0784
IV. Engineer's Department					
A. Chief Engineer (1)	$ 3,600				
1. Firemen (4) at $1,716	6,864				
		10,464	6.23	1.92	.0265
Maintenance Account					
V. Maintenance Department					
A. Assistant Supt. (Allocated to Supt.'s Dept.)					
1. Electricians (2) at $3,692	$ 7,384				
2. Helper (1)	2,080				
3. Elevator Repairmen (2) at $2,080	4,160				
4. Mechanics (2) at $2,080	4,160				
5. Carpenter (1)	3,600				
6. Assistant Carpenters (2) at $3,432	6,864				
7. Laborers (2) at $2,080	4,160				
		32,408	19.33	5.93	.0822
Total		$167,712	100.00	30.69	$ .4250

♣ ♣ ♣

The Land Survey Systems of the United States

By RALPH V. FIELD, M. A. I.
Compiled from Government Reports and Maps

EVERY formal appraisal of real estate includes a legal description of the property appraised. Therefore, appraisers have a direct interest in the land survey systems of the United States. Surveying is a highly technical subject. However, there will be no attempt in this article to any greater degree than may be necessary to treat the subject from a technical standpoint, but rather to present in as direct language as possible a few of the main facts of the rectangular system of survey, which system is in effect in a large part of the country, and to include a brief history of the origin and development of the system.

The metes and bounds system of survey was used in surveying the land on the Atlantic Seaboard from Maine to Georgia inclusive, also in Kentucky, Tennessee, West Virginia, and Pennsylvania. In Texas, the metes and bounds system of survey, effective before Texas was annexed to the United States, is still in effect in that state. The rectangular system of survey is in effect in the remainder of continental United States, including Alaska. Both systems are in effect in Ohio, while the metes and bounds system is used where needed on account of particular conditions in all parts of the United States.

EARLY HISTORY

The early settlers on the Atlantic Seaboard "took up" land by indiscriminate location. As settlement increased and emigration moved westward, it became evident that the public lands must be disposed of under some definite and equitable policy. The colony of Massachusetts in 1634 authorized its general courts to make small grants of land to both individuals and groups. These grants were called "towns" and were surveyed, recorded, and settled as colonies with definite forms of local government. Where the topography of the country permitted, they were of about the same general size but often very irregular in outline, as the purpose was to embrace in the prescribed area as much agricultural land as possible. These grants were very successful, and in time it became evident that the six-mile square was the most desirable, as that area, together with uniformity of outline, best fulfilled the requirements. So the tendency grew toward granting tracts of land containing thirty-six square miles in as nearly a square as possible.

Chelmsford on the Merrimac River was incorporated in 1652 and was the first "town" of this sort in the country. It was not square in outline, but rectangular. The records show that the first grant in the form of a six-mile square was made by the General Court of Massachusetts in 1656 and was incorporated under the name of Marlborough. While this town was a six-mile square, the boundaries were not run on the cardinals; however, it was the first to have the shape and area of the modern township.

As settlement grew and advanced westward, the six-mile square township became the recognized unit of land grant in all the New England colonies. Not until 1749 was the first standard six-mile square township, with boundaries bearing by official order north and south and east and west, regardless of the topography of the

country, surveyed and recorded. Jefferson was particularly impressed with the suitability of the plan and urged that it be used in the settlement of community lands in Virginia. He was supported by many Virginians, but without success. He clung to the idea, as he clearly saw the possibility of a perfect identification and an orderly settlement of the public lands.

A committee of the Continental Congress, of which Jefferson was Chairman, reported on May 7, 1784, an ordinance with respect to locating and disposing of public lands. This ordinance is in Jefferson's handwriting, and it is presumed that he was its sole author. That portion of the report relating to surveys made provision for dividing the public lands into "hundreds" of geographical ten-mile squares and then again into "lots" of one-mile square each, to be numbered from one to one hundred with all lines on the ground in the cardinal directions.

A few weeks after the report was submitted, Jefferson was appointed Minister to France, and he took no further part in the discussions. William Grayson, delegate to the Continental Congress from Virginia, reported a new ordinance on April 14, 1785, which closely followed Jefferson's ordinance in principle, but with several amendments. The town was reduced from ten to seven miles, and a Geographer for the United States was appointed. Grayson's report employed for the first time the words "township" and "section." After weeks of bitter debate between the advocates of survey and location by "fixed system" and those advocating "indiscriminate location," the bill was amended to provide for a six-mile square township in lieu of one seven miles square and for "lots" to be protracted on paper instead of "sections" to be established on the ground; and in this form it became a law on May 20, 1785.

DEVELOPMENT OF THE SYSTEM

The system at this time consisted of a six-mile square township with boundaries in the cardinal directions, but with no provision for correction for the convergency of meridians nor for disposition of excess or deficiency of measurement from whatever cause. It also lacked primary control, except that Ellicott's line, the boundary between Ohio and Pennsylvania, should serve as the initial reference line and that the first east and west line should be run west therefrom. Base lines and principal meridians, as used in the survey at a later date, were unknown at this time. Perhaps they were overlooked, their importance was not understood, or these details were to be left to the judgment of the United States Geographer.

The system was launched on a part of the public domain, now the State of Ohio. Large tracts had already been designated, such as the United States Military Lands and the Connecticut Reserve. These tracts, according to United States maps of the survey system, are included in the rectangular system of survey; according to the same authority, the Virginia Military Land and the Ohio Company's Purchase were both surveyed by the metes and bounds system.

In 1796 President Washington appointed General Rufus Putnam to the office of Surveyor General of the United States, which office he held until 1803. Putnam further developed the system by recommending the modern plan of numbering "sections," of running out their boundaries on the ground, and of throwing the excess and deficiency of measurement on the north and west exterior boundaries.

But Putnam had not found the key to the all-important problem of control. To his successor, Jared Mansfield, appointed

by President Jefferson in 1803, belongs this honor. Mansfield was an able surveyor and had the full support and confidence of the Government. Up to this time surveys had been made without proper coordination; accordingly, these surveys were characterized by gross error and were proving a source of much contention.

Mansfield's first work was in the territory of Indiana. He first established the Indiana base line near the southern boundary. He next named the meridional line, previously run by Ludlow, the First Principal Meridian, and extended this northward in 1817 as the boundary between Ohio and Indiana. He then extended the Indiana base line westward across Illinois to the Mississippi River and established the Third Principal Meridian near the center of the territory of Illinois. He next proceeded with the subdivisional surveys, staying close to the base line. These were the best of the surveys executed up to this time. He resigned in 1812.

Mansfield's part in the rectangular system of survey was the introduction of primary control in the shape of base lines and principal meridians and the establishment of these lines in accordance with scientific principles. The Ohio surveys used base lines and meridians, but only as boundary lines and without proper coordination. Accordingly, Mansfield made one more step toward perfecting the system.

However, there was still one more very important measure to be taken—no provision had been made in the ordinance of 1785 for offsetting the effects of convergency. Edward Tiffin, Commission of the General Land Office, which office was created by Act of Congress on April 25, 1812, took the next step toward perfecting the system. The matter of the effects of convergency had been given much thought and consideration, at least since 1785, but nothing had been done about it. With the purchase of Louisiana in 1803, an empire magnificent in fertility and extent was added to the territory of the United States. Insistent demands that the public lands be surveyed and opened for settlement had to be met by surveying these public lands in a correct and scientific manner; otherwise, the whole survey system would have been thrown into disrepute.

Mansfield must have understood the problem, but he did nothing about it. Perhaps his north and south lines had not been extended far enough to have been affected by the convergency of the meridians. Edward Tiffin not only understood the problem, but he found the answer. He realized that as the township surveys grew in distance from the base line, it was necessary that additional initial and controlling lines be added at certain distances. He devised the scheme of guide meridians and standard parallels, which constitute such an important place in the public land surveys of today.

The system was now complete. However, the Act of Congress establishing the rectangular system of survey has been amended often, and since Tiffin's day numerous refinements have been added from time to time as necessity arose. Credit for the system cannot be given to any one man. Like many other institutions in the life of this nation, it grew and developed for more than a century. The system was stamped with the genius of Washington and Jefferson; it was molded by the experiences of the early settlers of Massachusetts and the Connecticut colonies; it was shaped and pounded out on the anvil of debate in the Continental Congress; and its success and development were contributed to by General Putnam, Jared Mansfield, Edward Tiffin, and scores of others who assisted in perfecting and adding

minor details to the perfection of the whole. The rectangular survey system is wholly and primarily an American institution, as no other nation contributed anything to its development or perfection, and no other nation, except Canada in the Provinces of the Northwest, has used the system in surveying public lands.

THE PLAN OF THE SYSTEM

Ellicott's line, the boundary between Pennsylvania and Ohio, was used in part of the survey of Ohio. The First Principal Meridian forms the boundary between Ohio and Indiana. (These Meridians are not the standard Meridians of the earth, measured from the Meridian of Greenwich, but are the so-called Principal Meridians of the rectangular survey system and are located where convenient for that system.)

The Second Principal Meridian is located a little to the west of the center of Indiana. The Third Principal Meridian runs through about the center of Illinois. The base line of the Second Principal Meridian crosses that line in the southern part of Indiana. It is known as the Petersburg base line and is extended westward to the Mississippi River, crossing the Third Principal Meridian near Centralia, Illinois. The Fourth Principal Meridian crosses Wisconsin and a part of western Illinois. This Principal Meridian meets its Illinois base line near Beardstown. This base line is projected westward across Missouri. The Fifth Principal Meridian crosses eastern Iowa, Missouri, and Arkansas. The Sixth Principal Meridian crosses Kansas and Nebraska and is used either wholly or in part by Kansas, Nebraska, Colorado, and Wyoming. Meridians other than these are: the Choctaw and Chickasaw Meridians in Mississippi; the Indian Meridian in Oklahoma; and the Mount Diable Meridian in California. The entire system, including the Fairbanks and Copper River Meridians in Alaska, consists of thirty-five Meridians.

Having established the base line and its Principal Meridian, which, as a matter of course, cross at right angles, the next step is to run lines, called correction lines, twenty-four miles in this latitude, north and south of the base line and parallel to the base line. The next step is to locate a point on the base line twenty-four miles east of the intersection of the Principal Meridian and the base line. From this point a line is run north on a meridian to the first parallel or correction line. This is called a Guide Meridian. The surveyor now has surveyed a tract of land twenty-four miles on the west boundary and twenty-four miles on the south boundary. The north boundary, while parallel to the south boundary, is a little less than twenty-four miles in length, due to the fact that both its west boundary and its east boundary are segments of true meridians of the earth and, due to their convergency, cannot be parallel. The resultant figure is not a square, but a trapezoid.

The next step is to survey the trapezoid into townships, each of which will be six miles wide on the base line, but, due to convergency, a little less than that on the north line. The east and west lines of the township are meridional lines. "Convergency" results in shortage of acreage; "errors," in either shortage or excess. "All discrepancies, due to convergence and to errors in measurement or alignment, are thrown into the most westerly half mile, all other distances being exactly forty chains." Accordingly, shortages in acreage will be found on the west sides and the north sides of townships. These shortages are evident in fractional sections and subdivisions thereof.

After having run the township lines, the final step is to run the sectional lines,

dividing each township into thirty-six sections or so-called square miles. These are numbered, beginning at the northeast corner of the township and numbering west to the northwest corner, which section is number six, then dropping down one section and numbering east. This process continues until the entire township is numbered, the section in the southeast corner of the township being number thirty-six.

MINOR DEVIATIONS FROM THE PLAN

No two states are surveyed alike in so far as minor details are concerned. The survey system usually follows fairly definitely the Acts of Congress effective at the date of the survey. As the Act has been amended many times, many deviations have resulted. In Illinois, according to the Government Survey Land Map, instead of the correction lines and Guide Meridians forming twenty-four mile squares "as nearly as possible," the correction lines appear at irregular intervals, the typical correction line being forty-eight miles north of the Petersburg base line and its Guide Meridian, sixty miles east of the Third Principal Meridian, thus forming a rectangle "as nearly as possible" — in reality, a trapezoid forty-eight miles by sixty miles on the south boundary. The trapezoid is surveyed into townships.

The survey system of the State of Wisconsin, according to the United States Survey Map, does not use Guide Meridians. This results in "jogs" in the township lines, on the third correction line east of Medford, as great as three miles.

The eastern part of Oklahoma uses squares, twenty-four miles by twenty-four miles, "as nearly as possible." The western part uses correction lines twenty-four miles apart, but it does not use Guide Meridians.

The eastern part of Kansas does not use Guide Meridians. The western part uses rectangles "as nearly as possible," thirty by forty-eight miles.

On the fifth standard parallel in southern Oregon will be found two ranges of fractional townships, numbered 29½ and 29¾, respectively. A study of the map will bring out many other deviations in minor details.

GENERAL PLAN OF RECTANGULAR SURVEY SYSTEM

The 1930 *Manual of Instructions for the Survey of the Public Lands of the United States* outlines the general plan as follows on page 135:

"For the purpose of disposal of the public domain the law provides, in general terms, for its description, subdivision, and identification in conformity with the following general scheme:

"1st. The township, 6 miles square, containing 36 sections, each 1 mile square."

(Note: A square township of land under the rectangular system of survey is mathematically impossible, as the east and west boundaries of the townships are segments of true meridians of the earth and cannot be parallel. Hence, the townships cannot be square owing to the convergency of the meridians. On convergency, the *Manual* states, page 129, "The convergency, measured on the parallel, of two meridians 24 miles apart and 24 miles long, in a mean latitude of 43° 20′, is therefore found to be 10.95 chains. The convergency of the east and west boundaries of a regular township in the same latitude would be equal to one-sixteenth of the convergency of the east and west boundaries of the quadrangle as computed above, or 68.44 links.")

"2d. The numbering of the townships meridionally into a range and latitudinally into a tier, from which the necessity

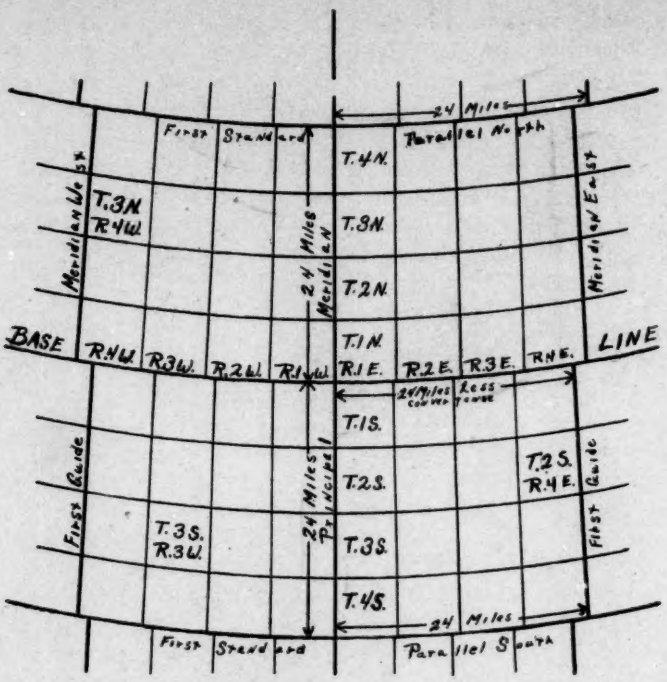

Figure No. 1

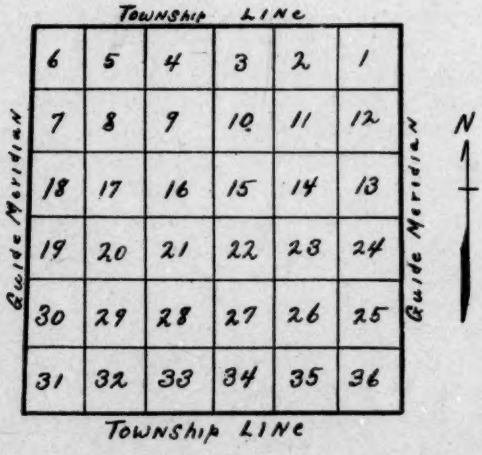

Figure No 2

at once appears for the selection of independent initial points, each to serve as an origin for the extension of surveys synchronously needed in somewhat widely separated localities, to provide for which, principal or governing meridians and base lines have been established, to which might be related the surveys executed in each of such localities.

"3d. The establishment of guide meridians and correction lines or standard parallels at intervals sufficiently near each other to maintain a practical workable adherence to the legal definition of the primary unit, the township 6 miles square, and at the same time to reduce to a minimum the number of corners required.

"4th. The placing of fractional sections on the north and west boundaries of the township.

"5th. The subdivision of the townships into 36 sections by running parallel lines through the township from south to north and from east to west at distances of 1 mile.

"6th. The inflexible declaration of the integrity of the corners marked in the public surveys as the proper legal corners of the sections or of the subdivisions of the sections which they were intended to designate, together with the equally important provisions (a) that the boundary lines actually run and marked shall be and remain the proper boundary lines of the sections or subdivisions for which they were intended; (b) that the length of such lines as returned by the surveyors shall be held as the true length thereof; and (c) that the sections shall be subdivided by running straight lines from the established quarter-section corners to the opposite established quarter-section corners."

Questions which may be of interest are presented by the following legal description:

N. W. ¼, Sec. 6, T. 28 N., R. 4 E., 3rd P. M., Livingston Co., Illinois.

A. What is indicated by "Township 28 North"?
B. What is indicated by "Range 4 East"?

Also these questions:

1. What is a fractional Quarter Section of land and what causes it, when not caused by a natural obstruction to the survey system, such as a lake or a river?
2. What relationship is there between the "jog" in the township line, as found in the rectangular survey system, and the fact that the world is round?

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2. *Elementary Surveying*—Breed and Hosmer.
3. *Surveying*—Bourchard (1935).
4. *Public Land System of the United States*—Government Printing Office, Washington, D. C.
5. *Map, Public Survey of the United States* — Commissioner, General Land Office, Washington, D. C.

* * *

The Changing Family

By WILLIAM F. OGBURN

THE family in the cities of the United States is changing as rapidly as is the church, the school, industry, or any other social institution. Indeed, it would be justifiable to say that a revolution is taking place in the family as a social organization. Undoubtedly, many forces have contributed to precipitate this rapid change, but foremost is the transference of productive economic work from the homestead to factory, store, and office. The limitation in the number of offspring that may result from marriage is also a very significant force profoundly affecting the nature of the family. But however these changes may be caused, they are not without influence on the real estate situation, as will be shown in the following paragraphs.

THE DECLINING SIZE OF THE HOUSEHOLD

It is a matter of common knowledge that the family is smaller in numbers than it once was. It is often said that one's grandmother married at fifteen years of age and had ten or twelve children, while the granddaughter today married late and has either had no children or one or two as a maximum. Such a characterization of the trends in the size of the family is quite extreme; though individual cases of this sort may have existed, it is far from being typical. For instance, in 1790 just after the colonies won their independence from Great Britain the average size of the household of rural and small town families was a little less than six persons, whereas the average size of households in such communities in 1930 was between four and five persons. The size of the typical household in rural and small town communities really decreased in size from the colonial time to the present in rural communities only about twenty-five per cent. The decline has been about fifty per cent if the rural family of early times is compared with the city family of today. In the twentieth century the decline in the size of the household has been more rapid than in the nineteenth century. The term household is defined in various ways, but however it may be defined, the decrease from 1890 to 1930 has been around fifteen per cent or perhaps a little less. From 1920 until 1930 the decline has been approximately six per cent. These data then show with some degree of exactness the decline in the size of the household.

The household consists of the immediate kinship family, relatives other than in the immediate family living in the household, servants living in the home, and boarders and/or lodgers.

THE SIZE OF THE HOUSEHOLD

In the United States Census of 1930 the size of the household is stated as consisting of four persons for the whole United States. The figure is determined by dividing the total population by the total number of households. But the Census lists about two and one-third million persons living alone as households. This seems to be a somewhat unusual practice. Most persons think of a household as consisting of at least two persons. If all one-person households be omitted, the average size household would consist of 4.25 individuals. It is customary to speak of the average size household as consisting of a fraction of an individual. What is meant is that, as in this case, 100 house-

holds contain 425 persons.

Persons interested in real estate are interested in the size of the household perhaps more than the size of the family; yet it is of some interest to determine the number of the various types of individuals that constitute a household. The Census from which the information is derived does not give sufficiently detailed figures to determine the numbers exactly, but it is possible to make some estimates. Thus, there are nearly five million boarders and lodgers in the United States who are not relatives nor members of the household. This means that for every 100 households there are eighteen such boarders and lodgers. As to how many relatives there are within the household who are kin to the husband or wife, the Census does not advise us. But from data published in *Recent Social Trends*, it seems that there are between about thirty and thirty-five relatives found on the average in every 100 households; or one relative is found with every three households. Probably forty per cent of these relatives pay board, or rent, however. This is an estimate, but it is probably near the truth. As to the number of servants, there are a little less than two servants living inside the home to every 100 households. We are now in a position so that we can determine fairly accurately the size of the household without lodgers and boarders who are relatives. Excluding all one-person households, it consists of 4.03 persons. I estimate that the average size family in the United States consisting of at least two persons who are husband and wife and/or children living together, and excluding servants, relatives, and boarders and lodgers, is 3.81 persons.

THE SIZE OF THE FAMILY ACCORDING TO SIZE OF COMMUNITY

The size of the family so defined varies according to the locality. For instance, families where both husband and wife are living on farms consist of 4.32 persons. For very small towns it is 3.72. In cities of about 100,000 population the size of such families is 3.42. In the city of Chicago, representing a great metropolis, the size of the family is only 2.85. Thus we see that the family decreases quite rapidly in size according to the size of the community.

I took these data on sizes of families by communities from the individual records in the files of the U. S. Bureau of Census. Their fuller analysis is found in *Recent Social Trends*. They deal only with families of the native-born stock of native parents. The families in cities of 100,000 in the middle west are thus one and four-tenths time as large as Chicago families. In the small towns they are about one-half again as large, while the farm families are one and three-quarters as large as these metropolitan families. Changes in regard to the family probably occur first in the very large cities and spread at a later date to the smaller places. Such seems to have been the course of birth control. It is quite probable therefore that the smaller places may emulate the example of the very large cities.

THE CHANGING SIZE OF FAMILIES BY SIZES OF COMMUNITIES

The decrease in the size of the family is known by size of communities since the beginning of the century. It is about eleven per cent in Chicago, about four per cent in cities of 100,000, and three per cent in the sample smaller towns in the Middle West. The decrease in size of the families then has been going on at a more rapid rate the larger the city. Still the decline has not been precipitous at all. About one-third of a per cent a year is the rate. The fact that the decrease has

not been so rapid in the small places may indicate that a greater decrease may be expected there as the diffusion of birth control spreads to the smaller places.

The decrease in the size of the family in Chicago may be due to other influences than the falling birth rate. Undoubtedly one such influence is the migration of families with children to the suburbs where there is more play space and less danger from automobiles. For instance, the size of the family in the suburbs around Chicago is about seven or eight per cent larger than in the city. And similarly, the families on Manhattan Island are smaller than in other parts of New York City. The average size of the household in Chicago, including the foreign-born and omitting households with only one person, is 3.44 individuals; whereas, the size of the household in Evanston, an adjoining city, is 3.28; in Winnetka, 3.87; in Wilmette, 3.74; in Hammond, 3.67; in Cicero, 3.74; and in East Chicago, 3.98. It is quite possible that this movement of families with children outward from the city may continue. Therefore, the family in the suburbs may be in future years more than seven or eight per cent greater than that in the city. The automobile and the suburban train are responsible for this development in the main, but, nevertheless, it is interesting that the selection to a slight extent is for families with children. That the city will become a place for the unmarried and for the childless couples, as has been said, is, of course, an extreme statement. At the present time the difference between the city and the surrounding suburbs is quite small.

THE COMPOSITION OF THE FAMILY

It is interesting to study the composition by types of the family in Chicago. The families thus studied include both broken and the unbroken families and include those with only one person but exclude the families of the foreign-born and of their children. The following table is most instructive. About four out of ten families consist of husband and wife only. This does not mean that no children have ever been born to the husband and wife but only that at the time of the Census in 1930 there were no children living at home. They may have died or moved away. If we include as families without children, a husband living alone and a wife living alone, as well as husbands and wives living together, but without children, then fifty-three families out of every 100 in Chicago are without children. This, of course, is a very impressive figure. It is not usually known that there are so many families with no children. There are only about six or seven families out of every 100 families in Chicago that have as many as three or more children. Of all the families in Chicago that have children slightly over one-half have just one child. How striking the family types in Chicago are, may be observed from the table on page 403, which shows the composition of these metropolitan families as compared with the farm families.

Only two families out of ten on the farms are without children as compared with four in Chicago. This table shows that thirty-six families out of every 100 on the farm have three or more children as compared with six or seven in the city of Chicago, about six times as many.

THE REASON FOR THE DECLINE IN THE SIZE OF THE FAMILY

The outstanding cause of the decrease in the numbers constituting the family is undoubtedly the influence of the movement to limit the number of offspring. This is a phenomenon which characterizes practically all of the western civilized coun-

tries. Before this movement set in, the birth rates were generally around thirty-five per 1000 population per year. The birth rate in the United States is now about nineteen per 1000 population, about one-half of what it probably was before the coming of birth control. It would be extremely interesting to know the probable course of the birth rate in the future, as this is the major cause in the change in family. Since 1933 the birth rate in the United States has been rising. In 1933 the birth rate was 18.0, an all-time low figure. In 1934 it was 18.6, in 1935, 18.8. These figures suggest that the bottom may have been reached in the decreasing birth rate and that from now on there will be larger families. Such speculation is not conclusive, however. The rise in the birth rate may very well be temporary, due to the increase in the number of marriages. When business depressions come in, there is quite a sharp decrease in the number of marriages contracted. During the 1930's there was a period of about three years of considerable postponement of marriage. As recovery began in 1933, many of these postponed marriages took place, and there was thus a rise in the number with a consequent increase in the birth rate.

In all other countries in the world the trend in the birth rate continues to fall. In Germany and in Italy the fall in the birth rate seems to have been retarded and even held stationary at times. But in Sweden, England, France, Germany, and Norway it is lower than in the United

THE DISTRIBUTION PER THOUSAND OF THE DIFFERENT TYPES OF FAMILIES IN CHICAGO AND ON FARMS, 1930. (Recent Social Trends, Vol. 1, p. 684)

(Where the wife is under 45 years of age—and the husband when listed without a wife is under 50 years—in a sample of native whites of native parents in the east north central states.)

Type of Family	Metropolis[1]	Farms[2]
Husband and wife only	398	163
Husband, wife, and 1 child	229	205
Husband, wife, and 2 children	122	202
Husband, wife, and 3 children	42	135
Husband, wife, and 4 children or more	19	214
Husband only	63	25
Husband and 1 child	5	6
Husband and 2 children	2	5
Husband and 3 children or more	1	5
Wife only	72	14
Wife and 1 child	31	12
Wife and 2 children	11	6
Wife and 3 children or more	5	8
Total of all types of family	1,000	1,000

1. Original schedules of the U. S. Bureau of the Census.
2. When the farms have the same age distribution as the metropolis, the frequencies of the different types of families on the farms are affected only very slightly.

States. The trend for all of the birth rate curves is downward.

As to the effect of deaths upon the size of the family, it may be expected to be slightly less as time goes on. Certainly it is hardly to be expected that there will be more deaths for any age group except for the older ages. The general opinion, and it is only opinion, seems to be that the diminution in the number of deaths in the future will be a good deal less rapid than has been in the past. Most of the great shrinkages in the death rates have been due to successful attack on the contagious and epidemic diseases, especially those of childhood.

The degenerative diseases of late middle age still take a great toll of life. The net effect of these two factors of birth and death will probably result in the continued diminution in the size of the family, at least during the near future, for the reason that there are more chances for the birth rate declining further than for the death rate.

As to a decrease of the members of the household other than the members of the family, a smaller number is also to be expected. For a large sample of the population the decline in these members of the household was from sixty-three in 1900 for 100 families to forty-four in 1930. It has been argued that many families eliminated servants in order to buy automobiles particularly during the 1920's. The invention of various electrical household appliances perhaps has the influence of eliminating servants. The growth of hotels and restaurants tends to draw the boarders and lodgers away from private families. The chief influence affecting the number of kinship relatives living with families is the tendency for families to scatter widely over the country, so that many families are no longer in the center of a community in which many of their relatives live. On the whole then, the chances point toward an even smaller family in the future than there is today.

THE AGE COMPOSITION OF FAMILIES

The proportion of old people in the population is expected to increase in the future. The country has an especially high percentage of young and middle-aged persons in it at the present time. This is due to the presence of young immigrants and also to the diminished number of children. As these young and middle-aged grow older, the proportion of elders will naturally increase. This increase in the number of elders will not be due to a reduction of the death rate among old people as might be supposed. The expectation of life for men and women in the fifties and sixties and seventies is no greater than it was thirty years ago. So the family then will have fewer dependents in the home of little children but probably more dependents among the old people. If old age insurance develops to the extent that there is generous support for the older people, they may maintain separate residences, but for very large numbers of families the elders will live with their children. A good deal depends upon the policy of industry in laying off from work older people and showing a preference for the employment of the young. On the whole though it is almost certain that the family will have a greater average age than at present.

BROKEN HOMES

A family is usually thought of as mother and father and children. However, there is a surprisingly large number of so-called broken homes. A broken home is here defined as one in which one parent is absent. This absence may be due to death, separation, or divorce. The number of broken homes depends, of course, upon the ages of husbands or wives. The chances of finding a broken home among the old

people is much greater than among the young. The concern of society with broken homes is largest for families in the childbearing period. Among families of this age in Chicago in 1930 there were found to be about nineteen broken families out of 100, or about one in five. On the other hand, on the farms there were found to be only eight broken families out of 100, or about one in twelve. Perhaps this great difference is accentuated by the fact that widows often leave the farms to come and live in the cities. For a sample of the population including villages, farms, towns, and cities, about one in seven or eight of the families of childbearing age was found to be broken. Sometimes the broken homes are reported to be more numerous, especially when the record is taken from reports of school children as to whether both of their parents are living together. But such samples are usually for a little older than of all families of childbearing age since the school children reporting are older than the average age of dependent children; hence, the slightly greater percentage of broken families is to be expected.

As to the cause of a home being broken, the facts show that the number of these homes within the childbearing period broken by death is about one-half the number broken by separation or divorce. Among older families, of course, the proportion broken by death will be very much greater. As to the extent of the breaking of homes by divorce, the figures show about one out of every five or six homes will be broken by divorce if conditions remain as they are. There are probably a good many homes that are broken by separation where divorce is not obtained. The Census has never published figures on the extent of separations. Indeed, it is quite difficult to say when a separation is temporary or permanent. Many men, for instance, leave their homes to take a job in another city. Thus Detroit requires during the busy season of automobile production many more men from other towns. Sometimes these men stay away for a long time, and sometimes they never go back. But in 1930, at the time the Census was taken, for a large representative sample in the United States, about one in every ten homes of this same age group was found to be broken by separation or divorce. The number of homes broken by separation and divorce was three times as great in Chicago as on the farms. These broken homes tend to swell the number of lodgers and boarders. It may be observed that the breaking of homes through separation and divorce is very much greater among families without children. Only about five per cent of the homes recorded as having children in the sample being discussed were broken by divorce or separation, while about twenty per cent of the homes without children were broken.

DWELLING PLACES OF FAMILIES

The great majority of the population of the United States live in one-family dwellings, seventy-six per cent to be exact. In urban places about two out of every three live in one-family dwellings. For the whole country one in eight families lives in dwellings containing three or more families; while in urban communities one in every five families lives in such flats or apartments. Until 1929 the number of homes in multi-family dwellings was increasing very rapidly. Indeed in 1929 about half the new homes in large cities were in multi-family dwellings. The depression, of course, slowed up the construction of these large dwelling units. What the situation will be when the construction industry revives is, of course, uncertain. The land values and economies of opera-

tion favor the apartment house. On the other hand, the spread of families outward to the suburbs encourages individual dwellings. The use of oil for heating and the use of the mechanical stoker and automatic regulation of temperature tend to favor the construction of individual homes. In Chicago thirty-two per cent of all dwellings were one-family dwellings. But only twenty-five per cent of all of the Chicago families live in one-family dwellings. In New York City only seventeen per cent of the families dwell in one-family dwellings, and on Manhattan Island, only three per cent.

Not quite one-half of the homes in the United States in 1930 were owned by those living in them. The percentage of homes rented is greater in the larger cities. But even in the very small non-farm homes in the United States only forty-five per cent are owned. The ownership of the homes in the United States is also being affected somewhat by the investment aspects. If the population continues to grow less rapidly, and the inhabitants of cities are thrown outward by centrifugal force, then the expectation of advance values would seem to be less in the city, particularly nearer the center. Of course this practice of owning a home in order to take advantage of the increased value, due to a growing population crowding in on the land, has always been affected by the tax situation and the tendency to capitalize in present prices the future values. In 1930, thirty-one per cent of the homes in Chicago were owned by those living in them as compared with twenty per cent in New York and only two and one-half per cent on Manhattan Island. The percentage of owned homes in Chicago has been increasing, there having been only twenty-six per cent owned homes in 1910 as compared with thirty-one per cent in 1930.

An interesting development in the dwelling is the apartment hotel. This is a building in which there is little or no economic labor performed, all services being rendered by the management. Such residences are often occupied by well-to-do people who have retired from business or whose children no longer live with them. The apartment hotel is also found in the Bohemian quarters of cities and in the districts. The statistics are not available, but it would seem as though this type of dwelling was increasing for both the poor and the well-to-do. Indeed some dwelling units in apartment hotels can hardly be defined in terms of the room as a unit. Most homes are spoken of as consisting of so many rooms, but with hallways, closets, kitchenettes, and other types of spaces, the room is hardly adequate as a descriptive unit for these apartment hotels.

THE USE MADE OF DWELLINGS

The various tendencies that have been noted have been described journalistically as leading to a home which shall consist of a couple of rooms over a garage. Another cartoon has referred to the home as merely a parking place for the night. These exaggerations may or may not point the direction of the trend. But it does seem that the members of the family are spending more and more of their time outside the walls of the dwelling. Men are at work in other buildings. Where they have to go long distances to work, lunch is always taken away from the home. Of course, the shorter hour movement gives them the opportunity for spending more time within the home.

Women are also being employed more away from home. About one in eight married women is working outside of the home for a wage or salary, whereas at the beginning of the century only about one in twenty-three was so employed. In the

city, of course, the per cent is even larger. The tendency is on the increase. Then, of course, other activities draw women away from the home, as, for instance, stores, theaters, clubs, and various types of public recreation. The children, in turn, also spend a surprisingly large part of their time away from home. The chief competitors for the home in this regard are the public parks and the moving picture houses.

Less and less economic activity is being done in the homes. Baking has almost completely disappeared, sewing seems to be on the way out, while steam laundries have been growing fairly rapidly. The number of restaurants and delicatessen stores is increasing about four times as fast as the number of families.

ELECTRICITY AND THE HOME

I stated in the opening remarks that perhaps the major cause of the changes in the family was the discovery of steam as power and its application to metal machines and tools. Steam is made in a boiler which requires a furnace too large for homes. So large houses called factories were built over them. The economic activities of the family were transferred to another location. But now another source of power, namely electricity, has come on the scene, which can be transported hundreds of miles, and to have it one needs only to press a button. It is thus easily available for any use that the home may wish to make of it.

Thus electricity suggests that industrial activities may be taken away from the factories back to the home. Such might be the implication were it not for the economics of mass production. The capital equipment of an electric home is fairly high, and the upkeep would be large. For tools that are used every day electricity is more suitable, particularly for those that have to be used on the place such as the vacuum cleaner. It is also certain that electric washing machines and the electric irons have tended to slow up the departure of laundries from the home. The influence is to slow up even though very slightly the tendency of the home to be a family parking place for the night. The number of electrical appliances for the home is very large. There is quite a startling variety of them, providing all manner of conveniences, all of which tend to make the home more livable.

A notable use of electricity in connection with the family life has been in connection with recreation, the most startling example being the radio. How much the radio may tend to keep the members of the family at home is a question, but undoubtedly its influence is in that direction. The possibility of more recreation in the home is quite great, especially if television should become widely used. Then the homes will have theaters in them. Its widest use would probably be the reproduction of motion pictures in the home, which might call for some change in the construction of the room to accommodate television production. The expansion of electric refrigeration in the family dwelling adds to its drawing power, particularly in the summer and in southern climates.

It may have been that the first thirty years of the twentieth century showed a general departure from the shrinkage of the home, but during the remainder of the century it may be that electricity will be used so conveniently and attractively as to counteract this trend.

* * *

The Relationship Between the Right of Way Agent and the Appraiser

By PETER HANSON, M. A. I.

THE ordinary condemnation proceeding involves many separate and clearly defined steps. From the time of fixing the route and establishing necessity to the final process of conveyance and possession, there are many legal and technical processes, each tied into and yet independent of the other.

The orderly process of these several steps mark alike fine appraisal technique and right of way handling. A slip in one may double the work of the other. Each must dovetail into the other, and each must be made a part of the whole.

"Due Process of Law" is a legal requirement. It is defined for us and must be followed. "Just Compensation" is a Constitutional pronouncement. It is an end to be sought and not a method. But the method and set-up of the ordinary condemnation proceeding is the product and the result of the mechanics of the appraiser and right of way agent.

The selection of the route is the job of the surveyor's crew. The preparation of maps is the job of the office engineer. The publishing of notices and summons is the attorney's job.

However, the various steps in between devolve largely upon the appraiser and right of way man. The appraiser usually comes first. It is his job to fix the damages both for the land taken and the severance damage, if any, to the land not taken. He, in turn, hands this appraisal over to the right of way man.

It is not enough to just give a figure. He serves the highest purpose of his job when his appraisal is set up in such orderly fashion so that each step in his appraisal logically leads up to the next step.

Nor is this all. The reasoning process of each step should be clearly set forth. This will not only enable the right of way agent to follow his reasoning for his own understanding, but it will be an aid in explaining when contacting the owner.

The mechanics of his appraisal should include such items as:

1. The character of the district.
2. The economic setting.
3. The reasonable highest and best use of the property.
4. Supporting data of sales, leases, and use earnings of comparable property.
5. The effect of the taking on what is left.
6. The logical conclusion leading to the answer—the amount of the damages.

With this instrument and analysis, the right of way agent is equipped to approach the owner. Only with the use of such a complete appraisal can he render his highest service as right of way agent. The two go hand in hand. Each supplements and helps the other. But the first responsibility rests upon the appraiser, whose job is the forerunner to contact and settlement on the part of the right of way agent.

The right of way agent, on the other hand, looks to the appraiser for findings of fact and value as to the district and the property. He has a right to expect this to be presented in an orderly, reliable, and convincing fashion, and, furthermore, that the appraiser will not give out his appraisal nor disclose its contents in any manner.

He uses it in his approach to the owner

of the property. He uses the data set up in the appraisal in making his offer for the land to be taken. If this data are unreliable or incomplete, it may not only be unavailing in itself, but it may be the means of antagonizing the owner, instead of opening the way to negotiations.

He uses the logic and reasoning employed in the appraisal to justify his offer and the basis of the amount of the damages. If this reasoning is unsound, the owner may only too easily lose faith in the fairness of the right of way agent and in the justice of the whole proceeding.

The right of way agent perhaps stands in the most important position in the entire matter. His particular trust is to contact and negotiate. It is highly essential that he is sacredly protected in that trust at all times and that the amount of the valuation does not leak out in any way. In this, there is a special obligation on the part of the appraiser. In a sense, the amount of the appraisal is peculiarly the property of the right of way agent until negotiations are completed.

If the appraiser should give out his valuation, he would not only muddle the work of the right of way agent but, in some instances, effectually bar the way to negotiations and so force an action in court.

Thus, we see the necessity and importance of each working in the fullest harmony and cooperation with the other—not alone because of greater efficiency in the right of way and land department as such, but also because of the reflexes touching the property owner and the general public.

Public opinion and good will are important considerations in acquiring the right of way for public use. It is a public proceeding for the public welfare, and the public pays the bill. These two are best preserved in the helpful, reciprocal relations of the appraiser and the right of way agent, each functioning to the fullest capacity for the success of the other.

In the job of each there are many contrasts and also similarities. At times their duties and functions partially overlap but never to the extent of one supplanting the other.

It would almost appear superfluous to caution against criticism. This should be beneath our sphere of endeavor. However, in the stress of service, derogatory remarks, one of the other, have sometimes led to misunderstanding and greatly embarrassed negotiations.

Finally, there is the place and position of each at the action trial. Needless to say, the conduct and manner of each should always be in keeping with the dignity of the court room. Inattention, flippancy, or carelessness of habit or manner may only too easily be interpreted as disrespect for the court and reflect an unfavorable impression upon the jury, which may be remembered when the jury retires to deliberate. Both should be studiously avoided.

In the court room the appraiser should always hold himself well in the background until called upon to testify. Any details of arranging maps and exhibits should be left to the right of way agent and the attorney. They are handling the case.

The appraiser's testimony is what counts, and he will come to the witness stand with more prestige and force if he does not make himself too prominent at the counsel's table before the trial begins. A seat back of the rail in the audience is much to be preferred.

The right of way agent, on the other hand, may well sit at the counsel's table and aid in arrangements, because he is not going to testify in the case.

SOME COMPARISONS OF DUTIES AND FUNCTIONS

1. The right of way agent should be a good diplomat and a first-class "horse trader."	1. The appraiser should be a well-grounded economist and a good analyst.
2. The right of way agent acts as the agent for his employer.	2. The appraiser acts independently of the party employing him.
3. The right of way agent contacts the human element in the proceedings.	3. The appraiser analyzes the value effects of the human equation.
4. The right of way agent should have a fair knowledge of appraising in general.	4. The appraiser should be a practical and experienced appraiser.
5. The right of way agent should know the orderly steps in a condemnation action so he can explain the same to the owner.	5. The appraiser should know the legal processes of condemnation so he can set up his appraisal in conformity with law.
6. The right of way agent should know how to prepare legal papers, such as deeds, easements, and agreements.	6. The appraiser should have a long and practical background of real estate experience.
7. The right of way agent should make it clear to the owner that the condemner seeks no advantage by the act of condemnation.	7. The appraiser should be able to fix the value of the land taken and the damage to the land not taken.
8. The right of way agent should dispel the fear held by the condemned because of his lack of knowledge in regard to the law in the matter.	8. The appraiser should be familiar with the ordinary and customary practices of business transactions.
9. The right of way agent should explain the difference in "value to him" as against the value to any owner who might be able to use the land.	9. The appraiser should set up his appraisal in an orderly and logical manner for the convenience of the right of way agent in dealing with the owner.
10. The right of way agent should seek an agreement or compromise but not at the price of honor or paying too much.	10. The appraiser should support his valuation with sound economic logic and supporting data.
11. The right of way agent should not flaunt the authority of condemnation in the face of the owner. He should not antagonize him. He should not discuss land economics with him which he does not understand.	11. The appraiser in making his appraisal should not discuss theories of valuation. He is presumed to understand appraising or he would not have been employed. His appraisal is the best answer to his theories.
12. The right of way agent should be a gentleman—amiable, dignified, and firm. The right of way agent stands in the position of contact man in the proceeding. Sometimes he is the only contacting agency, and the only impression the owner ever gets of the condemning party is this reflection of the agent's personal conduct.	12. The appraiser should realize the important place he holds in the action trial. He is paid for his services. His conduct on the stand may invite or dispel confidence as to his testimony. He should always treat the other side with respectful consideration, even though heckled by an opposing counsel.

* * *

Appraising for Federal Tax Purposes

By WARREN P. HUNNICUTT, M. A. I.

CHANGES in Federal tax laws and regulations within recent years, together with new interpretations of them by the Treasury Department, are creating more valuation work for *competent appraisers*. For the valuator interested in increasing his volume of business, there is perhaps no more fertile field than that of appraising for income, estate, and gift tax purposes.

In so far as I have been able to find, this is the first effort ever made to explore the subject of appraising for Federal tax purposes and is, therefore, an entirely new field for thought. For that reason it is presented here for discussion and constructive criticism.

I shall not undertake to discuss such general provisions of laws and regulations relating to Federal taxes as "Requirement of Return," "Time and Place for Filing Return," "Payment of Tax," "Penalties," and others similar. In the event an appraiser is not familiar with them—at least in a general way—he can find them in detail in *Regulations Relating to Income Tax, Regulations Relating to Estate Tax,* and other booklets and brochures published by the Treasury Department. They can be obtained from the Treasury Department or from the Government Printing Office, either gratis or at a nominal cost.[1]

Let me state further, by way of introduction, that efforts to be thoroughly informed on *all* Federal tax laws and regulations are useless expenditures of time and energy. This is the province of the accountant. The appraiser will do well to familiarize himself *only* with such parts of these laws and regulations as are necessary in his work.

Changes, additions, and amendments are constantly being made in these laws and regulations. Any proposed changes are usually discussed freely in the daily press prior to their final adoption or rejection by Congress. You have but to read the current issues of our daily papers in order to verify the accuracy of this statement. It is hard enough to keep up with tax laws and regulations after their adoption—even the small part actually affecting our work—without trying to keep up with them in advance. A friend of mine, a very capable certified public accountant, once gave me some sound advice in this regard. I was endeavoring to discuss with him some proposed changes, and he said: "Never bother to read about proposed changes in the Federal tax laws. Many of them never become law, and it is confusing." *Familiarize yourself only with such parts of existing laws and regulations as are used in your work.*

To those who have never engaged in appraisal work for Federal tax purposes, an additional brief introductory comment with reference to the administration of Federal taxes might not be amiss.

When a taxpayer files his return (either

(1) Perhaps the best brief summary on the subject is *Federal Tax Law With Explanatory Digest, Revenue Acts of* 1935, published by Prentice-Hall, Inc., 70 Fifth Ave., N. Y., and obtainable at $1.00 per copy. Of course, there are more expensive tax services and books for those who care to go thoroughly into the subject. A complete tax service is published both by Prentice-Hall, Inc., and the Commerce Clearing House, Inc., Loose-Leaf Service Division of the Corporation Trust Company, with offices in many of the principal cities of the United States. *Montgomery's Federal Tax Hand Book*, published yearly by the Ronald Press Company of New York, is, in my opinion, the best book on the subject. (This is not to be construed as advertising, but merely as an effort to be of assistance to appraisers desiring to make a more exhaustive study of the subject.)—AUTHOR.

The material contained in this article was first used by the author at the University of Florida during a short course in real estate appraising in May, 1936. His lecture was said to be an outstanding contribution to the success of that course, which was conducted under the auspices of the University of Florida, with the Florida Chapter of the American Institute of Real Estate Appraisers cooperating.—ED.

income, estate, or gift tax), the Treasury Department makes an investigation and audit. This is handled by the Bureau of Internal Revenue, a division of the Treasury Department, which maintains a large organization in Washington and in each of the various Collectors' districts. All taxpayers have a right and are accorded ample opportunities to present their cases in the field, as well as in Washington, in the event a deficiency has been determined by the Commissioner of Internal Revenue.

This procedure is described by Montgomery in his *Federal Tax Handbook*, as follows:

> "After the Commissioner has proposed the additional tax in the form of a preliminary letter to the taxpayer, and the taxpayer has been given an opportunity to present his case in the field and to the Bureau of Internal Revenue in Washington, if the Bureau is still of the opinion that the deficiency should be collected, a registered letter must be mailed to the taxpayer giving him 90 days within which to file an appeal with the United States Board of Tax Appeals. * * * In effect, the Board is a special tax court."

The Board is authorized by law to prescribe its own rules of procedure and practice. The procedure differs in few respects from that of any court of law.

While taxpayers are entitled to a hearing before the Board on all appeals, a hearing is not obligatory, and the case may be submitted without the personal appearance of the taxpayer or his counsel.

The Board of Tax Appeals is composed of sixteen members. It is, from time to time, divided by the chairman into divisions of one or more members. The divisions merely report to the Board concerning their opinions. Each report may be reviewed by the entire Board if the chairman directs. If thus reviewed, the Board makes its own report, but if not reviewed, the report of the division becomes the report of the Board after thirty days. (Hearings in which I have appeared as a witness, both for the government and the taxpayer, have been conducted by only one member of the Board.)

It was formerly the practice to hold most of these hearings in the offices of the Board in Washington. The Board, or any of its divisions, is authorized to sit at any place within the United States, and, pursuant to this authority, it held circuit hearings from time to time for the purpose of disposing of the appeals of taxpayers in a particular locality. I understand it is now the policy of the Board, whenever possible, to hold these hearings in the cities or near those in which the taxpayers reside, thus saving the taxpayers extra expense involved in traveling.

Prior to 1926, the decision of the Board was final. However, the Revenue Act of 1926 gave the taxpayer a right to appeal to a circuit court of appeals or the Court of Appeals of the District of Columbia. Section 1001 (a) of the Revenue Act of 1926 provides that:

> "The decision of the Board rendered after the enactment of this Act may be reviewed by a circuit court of appeals or the Court of Appeals of the District of Columbia * * * if a petition for such review is filed by either the Commissioner or the taxpayer within six months after the decision is rendered."

APPRAISING FOR INCOME TAX PURPOSES

Appraising for income tax purposes involves little that is new in appraisal technique, i. e., to the valuator who has done any of this work.

There are several reasons why appraisals of real estate are required for income tax purposes. Probably the four most frequently encountered are:

1. To determine gains and losses from the sale or exchange of real estate.
2. To determine the value of repossessed property.
3. To demonstrate to the satisfaction of the government that the enforcement of a lien already obtained will likely bankrupt the taxpayer.

4. To determine depreciation and obsolescence rates.

1. *To determine gains and losses from the sale or exchange of real estate:* Gains resulting from appreciation in the value of property have always been taxable when realized by a sale or exchange of the property. Conversely, losses have always been deductible.

When property is sold for cash, the gain or loss of course is immediately recognized, and no appraisal is necessary. When real estate is received in exchange, an appraisal is required to determine its value and the amount of the taxpayer's gain or loss, as the case may be. In a case of this sort, the *fair market value* of the property *as of the date of the exchange* is required.

2. *To determine the value of repossessed property:* Where a property is taken over by a mortgagee, lessor, or vendor under foreclosure, or by deed from a mortgagor, lessee, or vendee, an appraisal is often required to determine the value of the property *at the time of taking it over.* Here again the *fair market value* is required. The valuator must know the date on which the property was taken over by the mortgagee, lessor, or vendor and make his appraisal and valuation report as of that date. *It is, therefore, important that an appraiser retain in his files all data pertaining to values for past years.* In computing income return, it is necessary to have an appraisal made to show either a profit or a loss.

Some of the most interesting valuation studies I have ever made involved property appraisals where lessors foreclosed on long-term land leases after the lessees had spent large sums of money in the erection of improvements on the land leased. Many large properties are today being operated by receivers because the lessors will not complete their foreclosure proceedings and pay the large amount of income tax involved in taking them over.

3. *To demonstrate to the satisfaction of the government that the enforcement of a lien already obtained will likely bankrupt the taxpayer:* This, I believe, is self-explanatory. It is my understanding that the policy of the government is never to enforce a lien if it can be proven that such action will bankrupt the taxpayer. In such a case, a compromise of the tax debt is generally effected. Needless to state, an appraisal of this type, usually made at the request of the government (itself) but paid for by the taxpayer, involves the *cash market or liquidation value* of the property.

4. *To determine depreciation and obsolescence rates:* In computing net income, the government allows as deductions, "A reasonable allowance for the exhaustion, wear and tear of property used in the trade or business, including a reasonable allowance for obsolescence."

Depreciation and obsolescence deductions covering real estate must be confined to the improvements, since land itself is not subject to depreciation. Improved property is generally purchased as a whole without segregating the cost of the building from the cost of the land. In such cases the value of the building can best be determined through a competent appraisal. When an appraisal of this type is called for, the procedure is to determine the depreciated replacement value of the improvement, as of the date of purchase, the remainder of the purchase price representing land value. So that the purchaser may establish an annual depreciation and obsolescence allowance on the building for future use in preparing income tax returns, the appraisal report should set forth the probable useful or economic life of the same and its estimated remaining life,

together with clear-cut statements as to how such estimates were arrived at. *In no case is an apportionment accepted by the government that does not allocate a reasonable part of the cost to the land.*

Any idea of a mere reduction in market value not resulting from exhaustion, wear and tear, or obsolescence is excluded from the term "Depreciation." Before a loss from shrinkage in land values can be established, a bona fide sale of the property must be effected. No loss can be shown by general property depreciation. The 1934 Revenue Act places certain limitations on capital losses, so that now when a bona fide sale of a property or properties is effected, and a loss thereby sustained, the loss is limited. The limitation depends upon the various circumstances involved and differs in each case.

Art. 23 (1)—1 (Reg. 86) on Depreciation provides that:

> "The proper allowance for such depreciation of any property used in the trade or business is that amount which should be set aside for the taxable year in accordance with a reasonably consistent plan (not necessarily at a uniform rate) whereby the aggregate of the amounts so set aside, plus the salvage value, will, at the end of the useful life of the property in the business, equal the cost or other basis of the property determined in accordance with Section 113. Due regard must also be given to expenditures for current upkeep."

Prior to 1934, the basis for computing the amount deductible on account of depreciation and obsolescence of property acquired after February 28, 1913, was, in general, the cost of such property. If the property had been acquired by the taxpayer prior to March 1, 1913, the basis was, in general, the fair market value as of that date or its cost, whichever was greater.

During 1927, the Bureau of Internal Revenue requested the National Association of Real Estate Boards to appoint a committee to study the question of depreciation and obsolescence and to investigate life expectancies of various types of buildings.

Following a two-year study of the problem, the report of this committee was published during May, 1929. The report was based upon 111 reports received from local committees. In submitting the report of his committee, Chairman Walter S. Schmidt, of Cincinnati, Ohio, said in part:

> "The information we have gathered should have a three-fold value. It should be helpful in making appraisals of property, in measuring the investment value of real estate and in aiding owners of real estate to make depreciation estimates on their property when they calculate income tax returns. For these purposes the report constitutes a wider basis for judgment than has ever been available heretofore."

Estimates were made on thirteen types of buildings—office buildings; stores; warehouses; loft buildings; factories; public garages; theatres; hotels and elevator apartments; apartments and flats without elevators; stores with one or two stories of rooms or apartments; two-, three-, and four-family dwellings; row-houses; and one-family dwellings. Types of constructions considered for each type of building were: steel frame fireproof; reinforced concrete; slow burning masonry, with or without steel frame; and masonry with frame interiors and frame construction.

Subsequently, in January, 1931, the schedule of average life expectancies in this report was published by the Bureau of Internal Revenue in pamphlet form under the title, "DEPRECIATION STUDIES—Preliminary Report of the Bureau of Internal Revenue." At the same time, the Treasury Department revised its brochure known as "BULLETIN 'F'—Income Tax Depreciation and Obsolescence —Revenue Act of 1928."

In connection with this reference to the tables on building life expectancies and probable or average depreciation and ob-

solescence rates, it should be stated that there are those who, having acquired possession of tables of various kinds, feel that they have thereby gained an "open sesame" to the proper technique of real estate valuation. Nothing could be more erroneous or misleading. It is fine to have them as guides, if applied with knowledge, experience, and ordinary horse sense. There is an old maxim of real estate appraising to the effect that tables and rules are all right when they are your servants but poor things to have when they become your master.

Recent important changes in administrative procedure in the Treasury may make it necessary to develop an entirely new conception of depreciation. In 1934, as an expedient to raise additional revenue, the entire Treasury policy on depreciation was declared (in effect) to have been wrong.

On February 28, 1934, the Treasury Department issued its now famous T. D. 4422. This amends all regulations back to and including the 1921 Act, in so far as depreciation is concerned. It is less revolutionary in its effect than the original proposal (of the Sub-Committee of the House Ways and Means Committee) to reduce the regular depreciation allowance by a flat twenty-five per cent in order to increase revenues by $85,000,000.00. In a letter of January 26, 1934, to the Sub-Committee, the Secretary of the Treasury, Hon. Henry Morgenthau, Jr., offered a substitute. While the letter is quoted in its entirety, particular attention is directed to the last three paragraphs of the same. The letter follows:

"Hon. Robert L. Doughton,
Chairman Committee on Ways and Means,
House of Representatives,
Washington, D. C.
My dear Mr. Chairman:

In connection with the consideration now being given by the Ways and Means Committee to the inclusion in the pending revenue bill of some provision limiting or restricting the amount of deductions that may be allowed for depreciation, I believe it important that your committee should be informed regarding the action now proposed by the Bureau of Internal Revenue with respect to that subject.

"Section 23 (k) of the Revenue Act of 1932 grants as a deduction, 'A reasonable allowance for the exhaustion, wear and tear of property used in the trade or business, including a reasonable allowance for obsolescence.' In interpreting this section, article 205 of Treasury Regulations 77 provides that: 'While the burden of proof must rest upon the taxpayer to sustain the deduction taken by him such deductions will not be disallowed unless shown by clear and convincing evidence to be unreasonable.' Acting under these provisions and the corresponding provisions of prior acts and regulations, the Bureau has attempted to check the amount of depreciation deductions taken in income tax returns by an investigation through its field officers of the records of taxpayers and by the preparation of detailed and often burdensome depreciation schedules which are ordinarily necessary before judging the reasonableness of the deduction. In proceeding in this manner the Bureau has been handicapped in at least two important respects. First, the volume of this work has been such as to preclude the preparation of proper schedules in many cases. Second, the Bureau has been placed in the position of having to show by clear and convincing evidence that the taxpayer's claim was unreasonable, a particularly difficult matter since the determination of the useful life of assets and the consequent rates of depreciation is largely within the taxpayer's experience.

"The Bureau has for several months had under consideration more effective means of administering the depreciation provisions. This study has shown that through past depreciation deductions many taxpayers have (as shown by facts now known to exist) built up reserves for depreciation which are out of proportion to the prior exhaustion, wear and tear of the depreciable assets. If past methods are continued, the amount representing the basis of the assets will be completely recovered through depreciation deductions before the actual useful life of the assets has terminated.

"In order to overcome this condition the Bureau proposes to reduce substantially the deductions for depreciation with respect to many taxpayers in various industries, so that for the remaining life of the assets depreciation will be in effect reduced to the extent that it may have been excessive in prior years.

"It is intended that this end shall be accom-

plished, first, by requiring taxpayers to furnish the detailed schedules of depreciation (heretofore prepared by the Bureau), containing all the facts necessary to a proper determination of depreciation; second, by specifically requiring that all deductions for depreciation shall be limited to such amount as may reasonably be considered necessary to recover during the remaining life of any depreciable asset the unrecovered basis of the asset; and, third, by amending the Treasury regulations to place the burden of sustaining the deductions squarely upon the taxpayers, so that it will not longer be necessary for the Bureau to show by clear and convincing evidence that the taxpayers' deductions are unreasonable. These changes will increase the revenue substantially, and although difficult to estimate, records indicate that the amount of the increase in revenue will equal that which would result from the proposal of the Ways and Means Committee.

"Although the studies of depreciation made in the Bureau bear out the conclusion of the Ways and Means Committee that as a whole the deductions taken for depreciation in the past have been excessive when considered in the light of the facts now known to exist, it is the opinion of the present Bureau officials that the situation can be more equitably remedied through proper administratiive measures than through legislation which would arbitrarily reduce each and every taxpayer's depreciation allowance by a certain percentage whether or not the allowance may have been excessive for past years. I concur in this opinion, and I therefore urge that the matter be rested on proper administration rather than on legislative action.

Very truly yours,
H. Morgenthau, Jr.,
Secretary of the Treasury."

In commenting on the above letter, the Committee on Ways and Means reported:

"Your committee believes that the plan of the Secretary will be the best course to pursue. It will give greater equity and increase the revenue by as great an amount as the sub-committee plan. Consequently, no changes in the existing law are recommended. It should be observed that it is proposed not only to reduce the rates where they may be excessive, but also to reduce the allowance by spreading the unrecovered basis of any asset over the remaining useful life. This method of applying the depreciation rate to the cost of the asset reduced by depreciation previously allowed has long been used in Great Britain. In the opinion of your committee, it will automatically effect large reductions in these allowances."

From a study of Treasury Decision 4422, the reasons prompting it and subsequent rulings,—and from recent experiences in submitting appraisal reports covering depreciation to the Bureau of Internal Revenue—I am convinced that the substance of it all, as related to real estate, is that, if carried out, deductions allowed for depreciation and obsolescence in the future will be more nearly in accordance with the physical rather than the economic or useful life of the improvements. Then, too, by this decision the burden of proof is placed squarely on the taxpayer. (This should mean more valuation work for competent appraisers.)

Except for certain cases, the results amount to the same for the taxpayer in the long run. While depreciation deductions will not be as great for the present, the exhaustion of the property will not be reached as quickly. (The belief has been expressed in many quarters that established fundamental principles will continue to be recognized by the Treasury Department. This, of course, remains to be seen.)

APPRAISING FOR ESTATE TAX PURPOSES

Several years ago, when employed to value the real property of a large estate for inheritance tax purposes, the appraisal and accompanying report were prepared in the same manner as though the appraisal had been for any other purpose. That is, it was based upon "the present worth of future earning expectancies" of the various income or investment properties comprising the estate.

Subsequently, I made many other appraisals of estates for the same purpose, each following somewhat the same procedure as the first. Even during the early years of the depression, I made full allowance for the expected upturn in general economic conditions—that proverbial pros-

perity, always lurking "just around the corner."

In the meantime, my work along this line caused me to put forth some research efforts, especially in looking up estate tax laws and regulations and decisions of the Board of Tax Appeals. Then, too, I began a search of the various authorities on valuation, for in my own mind I was convinced that to appraise an investment property by this method, regardless of economic conditions, was oftentimes discriminating and unfair and that real estate, as an investment, was in some instances penalized in favor of stock and bonds. In short, I was convinced that investment properties should not always be valued in exactly the same manner for estate tax purposes as for other purposes, *especially during depression years.*

It is interesting to note in this connection that, in my examination of the many pamphlets and books on appraising, together with the numerous published articles on the subject, I found the subject of appraising for Federal tax purposes referred to by only one authority—Frederick M. Babcock, M. A. I., one of America's foremost valuators. He casually mentions it in his book as one of the purposes for which appraisals are required. I turned to an examination of various published appraisal reports. One of these, made by J. Alvin Register, M. A. I., of Jacksonville, Florida, was prepared for inheritance tax purposes, but here again the customary form of "present worth" was used. However, in discussing the matter with Mr. Register at a later date, I learned that he used a higher capitalization rate than probably would have been used in the ordinary appraisal.

My studies have convinced me that this method of appraisal procedure in the valuation of income or investment properties of estates, especially those involving large amounts, is not always fair to the estate and that real estate is frequently discriminated against thereby. In my later appraisals of estates I have evolved a different method; one which, in my opinion at least, is fairer to the estate and fair both to the government and state. I have used no other method during the past few years and, in so far as I know, the principle of valuation set forth in these appraisals and accompanying reports has been accepted by the Bureau of Internal Revenue and the State Comptroller's office.

That method, which I shall subsequently describe, may not be perfect, although to my mind it is quite fair and correct.

The origin of the estate tax and the theory behind it are not only interesting but should be an aid to the appraiser in obtaining a thorough understanding of the subject.

In the early stages of civilization, no man had any control over his property longer than while he kept it in his possession; when he died, there were no laws under which it could be distributed. His relatives had no recognized right to his property, and it was usually taken over by the first big brute strong enough to seize and retain it against the claims of other brutes. With the development of civilization, it gradually came to be recognized that a man had more than a mere right of occupancy in property acquired by him. The question naturally arose as to whether his desires relative to such property should be respected after his death, or whether his estate should once more belong in common to his tribe or to his state. As the owner held his property, not as a result of a natural right but as a result of the rules or laws of his tribe or state, it was conceived that he could be given the right to dispose of it at death as he saw fit.

This is the theory behind the levy of an estate or inheritance tax—a tax imposed by the government or state for the privilege and protection afforded by the government or state to a person in controlling his estate after his demise. When a person becomes the beneficiary of assets, which he has not earned by his own labors, and has the benefit of all the machinery of government for his protection in the use and enjoyment of such assets, it is right and fair that the estate should be taxed before the transfer is made. The amount to be thus levied is the mooted question.

In short, so called "death taxes" are imposed on the privilege of a decedent to transmit property and on the privilege of an heir or legatee to receive property. The federal estate tax is of the former type. It is levied, at graduated rates, upon the estate as a unit rather than upon the distributive shares of the recipients of the property. This tax is assessed against all *net estates* in excess of $40,000.00 (formerly in excess of $100,000.00). The term *net estate* has a distinct meaning in the statute, signifying the difference between the total value of the gross estate and the total of the authorized deductions. The tax rate starts at two per centum and is operated on a "step-up" scale to seventy per centum on estates in excess of $50,000,000.00.

Estate or inheritance taxes are also levied by the separate states.

At the regular session of the Florida Legislature in 1923, a proposed amendment to the state constitution was submitted to the people by a joint resolution of the House and Senate. This amendment was ratified at the general election in 1924, and it became Section 11 of Article IX of the constitution of Florida, which reads as follows:

> "No tax upon inheritances or upon the income of residents or citizens of this state shall be levied by the state of Florida, or under its authority, and there shall be exempt from taxation to the head of a family residing in this state, household goods and personal effects to the value of $500.00."

The effect of this amendment was to create a lot of favorable publicity for Florida throughout the United States. Thousands of people, especially in the east and middle west, soon began to establish their domiciles in this state in order to escape the state inhertance taxes, as well as the rigorous winter climates of other states.

The Congress of the United States, on February 26, 1926, enacted the present basic inheritance or estate tax act, section 301 (b) of which reads as follows:

> "The tax imposed by this section shall be credited with the amount of any estate, inheritance, legacy or succession taxes actually paid to any state or territory or the District of Columbia, in respect to any property included in the gross estate. The credit allowed by this subdivision shall not exceed 80 per centum of the tax imposed by this section, and shall include only such taxes as were actually paid and credit therefor claimed within three years after the filing of the return required by section 304."

In other words, Congress passed a law aimed at those states not having any inheritance tax, principally Florida, providing for a credit of all inheritance taxes paid the states up to and including eighty per centum of the total inheritance tax, that is, a deduction or rebate to the State of eighty per centum on all taxes due the Federal Government.

Under the constitution of Florida at that time, as stated, no tax on inheritances could be levied by the state or under its authority, and for this reason the estates of deceased citizens of Florida were compelled to pay estate taxes to the United States government, no part of which could be returned to the state. It was realized that if the constitution were amended so that this eighty per centum could be

received by the state, no additional estate or inheritance tax would be imposed on the citizens of Florida, and at the same time large sums which were then going to the Federal Government would be received as taxes in this state, without any additional burden on the estates of persons dying as citizens of the state. It, therefore, became necessary to amend the constitution again. However, before amending it, the state of Florida made an attack on the constitutionality of this act of Congress, but the United States Supreme Court upheld the constitutionality of the act, thereby making it necessary for Florida to amend its constitution with reference to inheritance taxes.

Following an amendment to the constitution of the state, adopted at the general election in 1930, the next session of the Legislature, in 1931, passed an inheritance tax law providing for the collection of the eighty per centum of the Federal estate tax to which the state of Florida was entitled after the amendment of its constitution. This act provided for the same schedule of taxes as is provided in the Federal estate tax act of February 26, 1926, and that the inheritance tax so assessed by the state of Florida is to be credited with money paid the United States.

The legislature in 1933 enacted another inheritance or estate tax act, effective October 1, 1933. It provides that it shall remain in force and effect only so long as the government of the United States retains in full force and effect as part of its revenue laws a Federal estate tax. When the United States ceases to enforce an estate tax, then the Florida estate tax, under its own provisions, will cease to be operative.

The method of valuing property for estate or inheritance tax returns, in general, is described under Article 13 (Reg. 80) relating to Estate Tax, as follows:

> "The value of all property included in the gross estate is the fair market value thereof at the time of decedent's death. The fair market value is the price at which the property would change hands between a willing buyer and a willing seller, neither being under any compulsion to buy or sell. The fair market value of a particular kind of property includible in the gross estate is not to be determined by a forced sale price or by an estimate of what a whole block or aggregate would fetch if placed upon the market at one and the same time. Such value is to be determined by ascertaining as a basis the fair market value at the time of the decedent's death of each unit of the property.'

From the foregoing, it will be observed that Treasury Department regulations adhere to the "willing buyer and willing seller" definition of fair market value.

I quote again from Treasury Department regulations:

> "Where the property is sold within a reasonable period after the decedent's death, and it is shown that the selling price reflects the fair market value thereof as of the date of decedent's death, the selling price will be accepted. Neither depreciation nor appreciation in value subsequent to the date of decedent's death will be considered. All relevant acts and elements of value should be considered in every case."

In connection with that part of the regulations just quoted, it should be explained that the executors or administrators of an estate have fifteen months from the date of the decedent's death in which to file a return. In addition, there are certain regulations governing the securing of additional time for filing a return.

In the above quotation from Treasury Department regulations, it should be noted that the "willing buyer and willing seller" conception of fair market value is amplified by the statement that, "All relevant facts and elements of value should be considered in every case."

In Montgomery's *Federal Tax Handbook*, he says:

> "The principal consideration in determining the value of any item of property to be included

in the gross estate of the decedent is to arrive at a figure acceptable to the examining officer and fair to the estate. The regulations leave open a number of questions which cannot be decided as matters of fact, and on which opinions may differ widely. 'Reasonable period,' proof as to 'the price at which property would change hands between a willing buyer and a willing seller,' establishment of the 'best price' which could have been obtained, are all factors which, if utilized, should be supported by every possible shred of evidence. Any haphazard estimate of value, or the inclusion of any item which cannot be substantiated by adequate evidence, may lead to the discounting of other facts possibly of vital interest to the taxpayer."

Treasury Department regulations also provide that:

"The property should not be returned at the local assessed value thereof unless such value represents the fair market value as of the date of the decedent's death."

The following decisions of the Board of Tax Appeals and various circuit courts of appeals are of interest.

In the case of *Cathcart, Exrs. v. Schwaner*, District Court of Illinois, 1929, it was stated, in relation to the fair market value of real estate, that:

"The values to be assigned to real estate for estate tax purposes are the fair market values at the time of decedent's death and should reflect all factors such as violent deflation."

In the case of *Buck et al as Exrs.*, Dec. 7472, 25 BTA 780—on appeal CCA—9, it was stated:

"Values of three parcels of real estate as returned for estate tax and state inheritance tax are approved. The values, accepted for State inheritance tax, were based upon a capitalization of net rentals. The figures were prepared by a well-qualified expert on real estate values in San Francisco who had been appointed by the court in hundreds of cases for the purpose of determining values, and another who occupied the position of inheritance tax appraiser for the State of California."

In the case of *McBride, Admx.*, Dec. 2863—8 BTA 435, it was stated:

"The value of buildings at date of death was fixed at that reported for estate tax purposes upon consideration of the character of the buildings and of the rents received therefrom. The Commissioner's valuation of stock was affirmed for lack of evidence."

In *Cook's Appeal*, 2 BTA 126, it says:

"In the absence of sale the most acceptable method to establish a value is by appraisal conducted by reputable appraisers. Such appraisals should be submitted in the form of affidavits."

All "reputable appraisers" should cherish that decision.

So much for the law, regulations, and decisions regarding the valuation of real estate for estate tax purposes. It surely would seem that, as Mr. Montgomery states, "The principal consideration in determining the value of any item of property to be included in the gross estate of the decedent is to arrive at a figure acceptable to the examining officer and fair to the estate."

Permit me now, briefly, to draw a comparison of the above with regulations prescribed by the Treasury Department for the valuation of stocks and bonds for estate tax purposes. Again I quote from Treasury Department regulations:

"The value of stocks and bonds listed upon a stock exchange should be determined by taking the mean between the highest and lowest quoted selling prices upon the date of death, except when such selling prices do not reflect the fair market value. * * * If there were no sales on the date of death, the values should be determined by taking the mean between the highest and lowest sales upon the nearest date either before or after the date of death, if within a reasonable period. If the security is listed upon more than one exchange, the records of the principal exchange should be employed.

"If the securities are not listed upon an exchange, but are dealt in actively through brokers, or have an active market, the value should be determined by taking the sale price as of the date of death, or where there was no sale on that date, of the nearest date thereto upon which a sale was made, if within a reasonable period.

"When securities are regularly quoted on a bid and ask basis, and actual sales are not available, the bid price as of the date of death, or the nearest date thereto where not quoted as of the date of death, will be accepted as the value."

That formula is unsound. In the case of listed stocks, the quotations or the actual transactions for one day are fre-

quently misleading. The trend of the market may be up or down, caused by bull or bear group manipulations. *One very important factor in fair market value is full knowledge of material facts by the buyer and seller.* In many instances, the buyers at the market at least possessed no such knowledge. However, it is the accepted formula for the valuation of stocks and bonds.

You now have, at least in a fair degree, a comparative picture of requirements for the valuation of stocks and bonds with those for the valuation of real estate. In the former, as already stated, the actual selling price of the stocks and bonds is the criterion of fair market value. In the latter, competent appraisers have in most instances arrived at the fair market value of real estate (income properties) through a determination of "the present worth of their future earning expectancies."

Needless to state, there is a constant fluctuation in economic conditions, and it sometimes happens that one section of the country is enjoying prosperity while others are having a financial panic, and vice versa.

It is my belief, after an exhaustive and careful study and analysis of the subject, that an appraiser employed to value the properties of an estate should take into consideration, to the best of his judgment and ability, economic conditions existing at the time of such valuation and the likelihood of a change in the same.

This part of my article, therefore, has been divided into three subheadings, as follows:

1. Appraising under normal conditions.
2. Appraising during financial depressions.
3. Appraising during a "boom" or under highly inflated conditions.

1. *Appraising under normal conditions:*

If conditions are normal and, from all indications, are apt to remain normal for a considerable period of time, the usual or customary appraisal form can be used. If all economic barometers indicate a "boom" or inflated conditions ahead, it would probably be advisable to use the customary appraisal form. On the other hand, if indications point to a depression within a short time, the method described under item two could be used.

2. *Appraising during financial depressions:*

Some appraisers have taken the attitude that under any conditions real estate should be valued extremely low in order to save for the estate a portion of the inheritance tax. However, such a policy is not only unfair to the government but, in many respects, it is unfair to the estate. In the first place, such an appraisal would be unsatisfactory to the government's examining officer, which would cause the administrators or executors a great deal of trouble, probably resulting in a demand for a reappraisal, thereby involving double expense. Even though such an appraisal should be accepted by the government, and the heirs should at a later date decide to sell the properties for the purpose of settling the estate, the same being sold at a substantial profit, income taxes would have to be paid on the amount between the appraisal values and the prices at which they were sold on the open market; and the income tax rates are higher than the estate tax rates. (This would not be true, of course, if it were the intention of the heirs to keep the estate intact, that is, if the properties were to be retained by the estate instead of being sold on the open market.)

It is my opinion that if general economic and market conditions are at a low ebb on the date of the decedent's death, and are apt to remain at a low ebb for any length of time, the fairest method of

appraisal to the estate would be the actual *cash market value,* as in the case of stocks and bonds. Since such an appraisal in all probability would not be acceptable to the government's examining officer, I have used the following method by way of a compromise—a method which is certainly fair to both the government and the estate. By means of the usual or customary "present worth" methods, I arrive at the *fair market value;* I also determine the *cash market value,* meaning that price at which the property would sell if put up for sale on the open market, and then take the mean between the two as the final valuation. As stated in the beginning, during the latter years of the depression through which we have been passing, I have used this method in all appraisal reports for estates and, so far as I know, it has been accepted in each instance. Then, too, such a method does not work a great hardship on an estate if the properties subsequently sell during better times and at prices higher than appraised values.

To illustrate: Let's assume that in the appraisal of an estate we have a building in the business district which is under a long lease to a reliable chain store system at $8,000.00 per annum net to the lessor and, further, that its value, determined by the "present worth" method, is $100,000.00. Let's assume, also, that as a part of the estate there are stocks listed on the New York Stock Exchange having a par value of $100,000.00.

At the time of the decedent's death, conditions were such that the parcel of real estate would not have sold on the open market in excess of $50,000.00. In other words, by every criterion the highest *cash market value* of the real estate on the date of the decedent's death was $50,000.00. On that same date the stocks, having a par value of $100,000.00 and a book value in excess of that amount, might have a value quoted on the Exchange of only $60,000.00. It will be seen, therefore, that to appraise real estate by the customary "present worth" method would result in a value for the real estate of $100,000.00 and for the stocks, having a *fair market value* just as great as the real estate, of only $60,000.00. At the same time, the *cash market value* of the real estate would be only $50,000.00, but such a valuation placed thereon would probably be rejected by the government's examining officer.

However, to take the mean between the *fair market value* of $100,000.00 and the *cash market value* of $50,000.00 would give the parcel of real estate a final valuation of $75,000.00. Then, in the event the real estate is subsequently sold at a figure approaching its *fair market value,* the income tax to be paid on the profit, i. e., the difference between the appraised valuation and the actual selling price, would not be so great as it would if the property had been previously appraised for estate tax purposes on a *cash market value* basis.

The point is stressed that this method is recommended only under conditions previously stipulated.

3. *Appraising during a "boom" or under highly inflated conditions:*

This is the other side of the picture. Appraising under such conditions is filled with vicissitudes.

There is one hazard to the estate which the appraiser should keep before him constantly. There are numerous instances on record where properties, both real and personal, were appraised and returned at high valuations and later, after deflation had set in and the properties had been sold to settle the estate, such a shrinkage in values had occurred that not even a sufficient amount could be realized therefrom to pay the amount of the inheritance tax. One

illustration will suffice to show my meaning.

A man died in 1926, and at that time various parcels of business properties, which were a part of his estate, were valued by estate appraisers at approximately $1,000,000.00. Mortgages on these properties at that time amounted to about $550,000.00. This total valuation was placed on the properties despite the fact that at the time there was every indication that the Florida "land boom" had crashed and that property equities were fast diminishing. Within a year or so thereafter, under foreclosure proceedings, the same properties sold at the Court House for less than the aggregate amount of the mortgages thereon. The administrators of the estate did not have sufficient money to pay the tax required under the return previously made, based upon the appraisal of the properties. The case was contested and a compromise eventually effected with the government. However, if the appraisers for the estate had adopted a method of valuation which recognized the economic conditions not only approaching but, in fact, already existing, this estate would have been saved a part of the tax and the heavy expense involved in the litigation.

In its final analysis, the method of appraising real estate for estate tax purposes should be determined by many factors, most of which have been outlined above. The appraiser must take into consideration in all valuations made for estate tax purposes the general economic and market conditions existing at the time of the decedent's death, whether or not there is likely to be a change in these conditions, and, if so, what such change is apt to be. In any event, a valuator should discuss these various factors with the attorney or accountant representing the estate before making his appraisal. I have found it very helpful to be able to discuss such matters with the attorney or accountant in his own language.

While on this subject, it might be well to supply one or two additional "pointers" in the appraisal of estates for Federal tax purposes.

For convenience to the attorney or accountant representing the administrators or executors of an estate, it is advisable to divide the appraisal into two parts, viz., Real Property and Personal Property, and to number each item listed under each part; also, to prepare three appraisal reports—one which can be supplied the government's examining officer with the tax return, one which can be supplied the state's examining officer with the state return, and another copy for the attorney or accountant. I have found that this is always appreciated.

In the appraisal of bonds, it is advisable to list the appraised value of the same as of the date of decedent's death in one column, the amount of accrued interest to date of death in another column, and the total amount of principal and accrued interest in a third column. This is a convenience to the party who prepares the returns.

All reputable appraisers are visited at various times by government and state examining officers who want assistance in checking returns which have been filed. Many appraisers have boasted that they refused to cooperate under such circumstances and would not lend any assistance unless paid for it. My experience has been that such an attitude is a mistake in judgment and that the appraiser who takes this position loses a lot of business thereby. Because of assistance rendered government and state agents in various matters, I have been employed to represent the government in several large litigated cases, as they generally employ those who have given such assistance to their agents,

provided they are competent appraisers. In fact, recommendations with reference to the employment of appraisers are usually made by such agents and followed by the Treasury Department. I might state, in this connection, that the government has no provision by which it can employ appraisers for Federal tax purposes until a return is in litigation.

APPRAISING FOR GIFT TAX PURPOSES

There is not much to be said on this subject.

The gift tax is a modern innovation in tax legislation. There are, therefore, comparatively few cases involving its interpretation.

The statute imposes the tax upon the transfer of property by gift made by any individual, and the tax applies regardless of where the property is situated and whether real or personal.

The gift tax is designed to impose a tax which will substantially compensate for the amount of the estate tax which would have been payable at the donor's death if the donated property had constituted part of the donor's estate at his death. The first $5,000.00 of such gifts is exempt from tax.

Section 506 of the 1932 law provides that, "If the gift is made in property, the value thereof at the date of the gift shall be considered the amount of the gift."

In order that the tax may be assessed, a gift must be reducible to money value. The Treasury Department's rules governing the valuation of property for purposes of the gift tax may be found in Article 19, Regulations 79. These rules are similar to those governing the valuation of property for purposes of the estate tax.

A party in Florida was the recipient of a very valuable parcel of real estate as a gift. It was assessed by the county tax assessor at $2,500.00 (all counties in Florida assess upon a basis of about fifteen to twenty per cent of actual value on account of the fact that a certain portion of the millage levied has to be paid the state, and the smaller the assessed valuations, the smaller the amount paid by each county to the state treasury). The gift tax exemption, as stated previously, is $5,000.00. Accordingly, this party returned it at a valuation of $5,000.00 and then had a good laugh over the tax which he had saved. In about a year, he sold the property at a price in excess of $50,000.00, showing a substantial net profit and necessitating the payment of income tax on this net profit. The income tax in that instance was considerably higher than the gift tax would have been. This party then made a valiant effort to change the amount of his gift tax return on the property. The government's examining officers then had their laugh—and a very hearty one. All of which goes to show that the government's rules and regulations covering Federal taxes are like the Irishman's fish basket—open at both ends and catching them going and coming.

In conclusion, I wish to say that I have been able to do little more than scratch the surface of this subject. However, it is a beginning, and if it will be the cause of a discussion among valuators which will bring out some constructive ideas, it will have been well worth the time and efforts expended. I trust some definite, approved method for appraising the real estate of an estate for Federal tax purposes will be evolved from such a discussion.

Note: It is a pleasure to acknowledge help received in the preparation of this article. I have quoted liberally from Montgomery's *Federal Tax Handbook; Wills and Administration of Estates in Florida*, by D. H. Redfearn, of the Miami, Florida, bar; and the tax services published by Prentice-Hall, Inc. and the Commerce Clearing House, Inc. The author further wishes to express his obligation to the certified public accountants of St. Petersburg, Florida, to whom he is indebted for suggestions and material.—THE AUTHOR.

* * *

Some Principles of Land Utilization

By HARRY GRANT ATKINSON

A CLEAR understanding of real estate values and appraisal procedure depends somewhat upon a practical grasp of the economic principles of land utilization. Ignorance of these principles, or failure to accord them proper consideration, makes the estimation of future benefits a haphazard process.

It must be remembered, however, that economic principles are not immutable laws which operate at all times in exactly the same way. They do operate, of course, but the results of their operations cannot be forecast with precision. This is because economics is a social science and, like all social sciences, deals with human tendencies and trends. Although economic "rules" are subject to numerous exceptions, they do furnish valuable and practical guides in charting the *trend* of values over periods of time.

Let us note, first, that land is man-made. Real estate is socially created wealth. The *quality* of the land anywhere is the product of human choice. In the city, land quality is particularly and intensely affected by the consensus of human choice which has produced that social-economic organization known as the community. Therefore, the problem of *land utilization* must be approached through a knowledge of the living growth of the community.

There is a certain parallelism between the attributes of a community and those of a living body. Both grow, not only externally but also internally. Both progress from very single germ-like structures to very complex integrated structures. In the process of growth, not only are the number of units increased, but the units themselves expand and become diversified. A city is not an agglomeration of buildings, but a living organism of social and economic forces so interrelated and bound together that no part of it can be separated or destroyed without affecting the whole.

Complexity rests not only upon the likeness of the parts but also upon the strength and the character of the bonds between the parts. Transportation and communication are as essential to the city as nerves and blood vessels are to the human body. The simple urban communities of a generation ago were small and self-sustaining and had little need for transportation and communication facilities, but a modern city cannot exist without them.

Doctor Richard T. Ely once likened the different parts of the city to the different tissues of the human body. The city, too, has nerve and circulatory tissues. The city has industrial, wholesale, warehouse, bank and financial, and residential tissues of various kinds. Like the bony structure of the human body, the city has a bony structure—the land and the physical improvements. This parallelism between the living community and the living body is, of course, not perfect; but it emphasizes the dependence of both structures upon a sound framework and upon proper coordination of functions. Each part must perform its functions for the life of the whole to be efficient. Each is essential for a mutually interdependent balance.

There are cities which are overwhelmingly industrial and in which other functions are dwarfed. Yet, an industrial community cannot exist without a resident labor supply, without retail and wholesale distribution, without transportation, without financial and public service, or without

a proper supply of raw material. Each of these elements exists *somewhere* as an integral part of such an industrial community.

Geographically, certain elements may be rather far removed from the main part of the industrial community; but, actually, each element is closely bound to the living organism by lines of transportation and communication. There are cities which are mainly, if not wholly, residential; but they exist as parts of complete communities upon which they are dependent.

Land is the enduring framework of the urban community, not only in the sense of support or standing room, but also as an economic good, intimately bound up with the life of the city and conditioning urban activities. Just as the land affects the character of the urban activities, so these activities affect the character of the land.

THE PRINCIPLE OF SCARCITY

Land, in the sense of standing room or support, is apparently a free good. But in an economic sense, land is far from free. This is because land has different qualities. Some land is more favorably located than other land; some is more fertile; some is rocky; some is sandy; some is marshy. Even as standing room, the utilization of the given site is dependent to some extent upon the ability of the land to carry the weight of the building erected upon it. Engineering can solve many of these problems. An example is the famous Imperial Hotel in Tokyo, which was built by Frank Lloyd Wright upon a cheese-like top soil over a lake of mud that is subject to frequent earthquakes. No skyscraper could ever be built upon such a foundation. Engineers in Chicago have erected giant skyscrapers on land that was once a swamp. Support, in the sense of standing room is, therefore, a factor in economic utilization; but it is less significant than other considerations.

The supply of suitable land for a particular purpose is limited—in amount or in accessibility—and may, therefore, be insufficient to meet the competition of demand for its use. This is the reason why we find high value attaching to centrally located business property. Such value is the result both of limited areas—scarcity—and of the fact that no two pieces of land are ever exactly alike. Each site is individual in quality.

The Chicago "loop" district, comprising approximately a square mile within the artificial boundary of the elevated railroad structure, has high unit value because the area within this transportation rectangle is limited and because the economic forces of the entire Middle West find managerial concentration in one form or another within this area, with the result that it has become an extremely active center of commercial and financial life. At the same time, some locations within the area are more advantageous than others for certain purposes and are, therefore, valued correspondingly higher.

On the New York City "water front," the land available for docks and warehouses is extensive, but there is still not enough to serve the need. There is not enough land for all the water front interests that seek its control. Many interests, therefore, must share dock facilities; and interests that are unable to pay the high costs of controlling water frontage must yield to those whose services to society can command a higher price. The Regional Plan of New York is seeking a solution to the problem of water fronts and other transport facilities in this area. Similarly, the available sites for apartments adjacent to city parks, river fronts, and lake fronts are limited, and hence command "scarcity" price.

The principle of scarcity applies not only to sites, but also to all real estate rental markets. In a given apartment area, for example, there may be a severe shortage of four-room apartments at the same time that there is a surplus of seven-room apartments. The size of and the rent which must be paid for the larger apartments effectively limit the demand for them—even though the rent may not be proportionate to the smaller apartments. The market for smaller apartments is diversified into low, medium, and high rent strata. At any one time there may be a surplus of low-priced small apartments in old buildings, while apartments of similar size in new buildings command a rent somewhat above the economic ceiling of the available demand. The upper limit of rent in each strata is fixed by two factors:

1. The supply of apartments.
2. The ability of the market to meet the price required.

The Principle of Anticipation

Another economic factor which closely touches the utilization of urban land is the principle of anticipation. There is anticipation in values, that is, in the price paid for a particular site or building and for building in advance of demand. Belief that land will inevitably increase in value is so universal in this country that almost any quoted price includes an element of anticipation.

One reason for this is the durability of land. Improvements eventually wear out; but land does not alter materially over a long period of time.

A second reason is that the supply of land is limited. A desirable site cannot be multiplied to meet the demand of the people who want to use it. Therefore, a particular building must seek to compromise present and future demand in a single unit.

A third reason is that the long life and high cost of most improvements prohibit ready adaptation to sudden shifts in utilization or in fluctuations of value. The fixity of the investment for a costly improvement upon a site tends to hold the site to its original use even though the general character of the district changes. This is one of the risks of urban investment. At the same time, it affords some assurance of continuing earning power; and this earning power is capitalized in the price.

Every real estate development is a "long-time forecast"—a forecast made much more difficult by the dynamic character of urban growth. The assumption of the risk usually carries a possibility of compensating rewards somewhat in proportion to the risk. The rapid, often unforeseen, changes in urban developments may make a building obsolete long before it is torn down. But scarcity and the growth of the population may tend to maintain or to increase the site value until the value of the site warrants a use high enough to justify the expense of wrecking the existing structure.

A fourth reason why the price of real estate so often includes this element of anticipation is the human tendency to discount the future in favor of the present. A discounted future value in the present is more desired than a remote return which is subject to all the risks of a dynamic society. This is true even though the remote return, if waited for, might be much larger than the present estimate. Every present estimate, then, has in it some element of faith in an increasing return in the future.

Building in advance of demand is a universal characteristic of urban real estate. The basic reason is that the fixity of the improvement is such that land and structure become one in use and cannot

easily be added to, piecemeal, to keep pace with demand. A building that is adequate for a five-year period may be wholly inadequate for a ten-year period. Such a building, therefore, will not yield the full service or utility of the location during the life of the improvement.

It is not feasible to build a foundation and a substructure on which a twenty-story building can be erected a story or two at a time throughout the years as demand warrants. Such a procedure would necessitate initial investments so large that it would be impossible to secure an adequate return on them. Furthermore, the inconvenience of building additions to the structures must be considered, together with the probability that construction costs will vary through the years.

A building may be inadequate and yield a low income but still be the highest and best improvement of the site because of the cost involved in wrecking the building and constructing another. The earnings of the property are limited by the structure until such time as the potential earning power of the site will cover the cost of demolishing the old structure and erecting a new one in its place.

Building owners and managers must plan their structures so as to effect a compromise between present earning power and future earning power and secure a fair average return during the life of the building.

THE PRINCIPLE OF ECONOMIC CONTRIBUTION

Urban land is a special form of capital. As such, it is a factor in production and should, in theory, earn a return proportionate to its economic contribution. But that yield is strictly limited by the law of diminishing return. There is a definite limit to the investment which can be made with profit in improving any given site. Some sites will permit much greater investment than others and are said to have greater capacity. When the limit is cost, diminishing returns ensue—sometimes quickly, sometimes slowly, but nevertheless surely, unless other elements become operative again to increase the capacity of the site.

The capacity of a site is measured by the amount that can be profitably invested in carrying it for utilization. The economic contribution of a particular property is measured also by the efficiency of the investment. Efficiency of an investment is the ratio of the return to the amount of capital involved. It is quite possible for two plots of ground of the same size and general character to have the same capacity for absorbing investment and at the same time be far apart in efficiency. Upon the same amount of investment, one may yield ten per cent and the other fifteen per cent. As a rule, however, the more efficient site will also have greater investment capacity. Two equally efficient sites may have quite different capacities, however.

The relative capacities and efficiencies vary with the use to which the site is put. It may not be economical to put a site to the use for which it has the greater capacity, and vice versa. The "highest and best use" may be neither the one of greatest capacity nor of greatest efficiency, but the one which most effectively balances capacity with efficiency for the largest net return over a certain period of time. For example, a given site may be suitable eventually for a very large office building, but the possible return now, or in the near future, on such an improvement may not justify the investment. Pending a market for such use of the ground, it may be best to use it as a parking lot.

An apartment building location with a capacity for a definite investment in it

may yield a higher return upon that investment if the building has a large number of one, two, and three-room units rather than a smaller number of five and six-room units. This is true if the market is such that there is a continuous unsatisfied demand for small apartments at a price higher than the per room rate of large apartments, provided the overall rent is well within the limits of the average low income group.

The rule is that the economic contribution of a site is greatest when it is put to its "highest and best use."

The Principle of Substitution

There is a well-recognized principle in banking, known as Gresham's Law, which states that of two kinds of money circulating together, the poorer money will drive the better money out of circulation. This same principle holds good in other fields. Of two commodities or services of unequal value, but fulfilling the same need, the lower-priced commodity or service tends to crowd out the higher-priced commodity or service. In local transportation, we note that "one-man" street cars and buses are displacing those requiring two-man crews. Of two apartments equally desirable, but differently priced, the lower-priced one will be rented first.

This principle of substitution, or choice of alternative uses, is a vital consideration in deciding upon the kind of improvement to make on a given site. Factories should not be built in the better grade residential areas, for the factory use will drive out the residential use—granted, of course, that the area and the transportation facilities are suitable for factory development. A second class residential section encroaching upon a first class section drives the people away from the finer homes, and the whole area becomes "second class."

Local regulation in the form of zoning ordinances have been devised to prevent or delay this process of substitution. Such regulations are designed to protect owners against the risks of substitution. The substitute use may be the "higher" use from the point of the return on the investment, but the period of the transition is usually an unprofitable one for the owners whose property loses its amenities and hence suffers loss in value.

A change in a zoning ordinance was sought in a certain residential area in order to permit the erection of apartment buildings. The agreement of owners to the change was obtained on the ground that apartment use would afford higher prices for their land. The ordinance was changed. Several pieces of property were acquired at a "premium" for "plottage," and an apartment building was erected. The owners of the lots, acquired for the apartment property, profited as predicted; but the other owners found not only that they could not sell their property at the higher prices but that their single-family homes had actually depreciated in value because of the proximity of the apartment building.

In the renting market, the principle of substitution is operative. A family that is unable to secure a desirable four-room apartment may be induced to take a five or six-room apartment at a "price." The market for the larger apartments being less extensive, the rental is dictated by expediency. The rental ceiling for six-room apartments is lowered to coincide with the rental ceiling of the four-room apartments. Once this lower rental has been established for some six-room apartments in competition with four-room apartments, the rent limits for all the apartments may be affected. In the same market, at one and the same time, there may be a "premium demand" for space in the newest and most modern structures, while the

pressure for lower rents is exerted through the principle of substitution in older and less modern buildings.

This principle does not work with equal force throughout the entire market; but it works strongly within the limits of each class of demand. The family of two members who wants a four-room apartment is not likely to be interested in a six-room apartment even at a "price"—for convenience and costs of operation are as important as the monthly rental.

THE PRINCIPLE OF PROPORTIONALITY

In the discussion of scarcity, it was emphasized that land as an economic factor is not unlimited. Since its availability is limited at any one time or place, it is highly important to portion the land among its uses in such a way that all demands can be adequately satisfied. Thus, the essential elements of a city must be so proportioned with respect to each other that the life of the city can proceed with minimum friction and without sacrificing the future.

The farmer decides what crops and what acreage of each he will plant to satisfy the market, basing his judgment upon estimated prices at the time of planting and of harvesting. Likewise, the owner of a city lot decides which of several possible uses will yield the largest return.

In the heart of a city a given lot may be usable for a hotel, for a retail store, or for an office building. The hotel or the office building can be built to greater heights than a retail store building. The traffic desirable for a retail site may make the location undesirable for an office structure. A hotel building giving the first floor or two over to retail establishments may be an efficient compromise of the income-producing possibilities of the property. The value of the improvement obviously must be consonant with the value of the lot.

When the type of structure best suited to the site has been determined, there is the problem of the most efficient size yet to be solved. What is the economic height of the building?[1] A generation ago the economic height of a building was limited in particular by the cost of the thick foundations and walls necessary to carry the weight of the upper stories and by the efficiency of elevators. Since the advent of steel for building construction, economic proportion has become a matter not only of proper investment in relation to site value but also a social problem resulting from traffic congestion and the costs of all sorts of public services. Hence, building height regulations, including "setback" and other artificial rules of proportioning structures to external conditions, have been laid down.

It is a general rule that the costlier the land, the higher the building should be to secure the maximum return for the owner. But even a high unit value will not support a high building economically if the plot is too small to warrant the elevator service required by the height. There is, however, no absolute rule that can be applied in all cases. Each site is an individual problem and must be studied in relation to the district and community as a whole, and particularly in relation to occupancy in the immediate neighborhood in order to determine the proportionate size and character of the improvements which the site requires.

THE PRINCIPLE OF BALANCE

The efficient functioning of the life of a community requires that there be a certain "balance" between the various utilizations made of the real estate sites within the

(1) See "Determining the Economic Height of Modern Office Buildings," by W. C. Clark of New York City. (Annals of Real Estate Practice, 1929, pages 826-851.)

community. Only a certain number of grocers can succeed in business in a given community. There is a limit to the number of department stores, the number of filling stations, the number of banks, the number of apartment buildings, the number of single-family homes, etc., that can be supported by a given population in any particular community. Over-expansion of any one use not only adversely affects all of the people who have invested money in real estate of all kinds but also adversely affects the various classes of real estate in the community.

The appraiser should ascertain whether or not the various types of utilization in the community, where the property he is appraising is located, are in "balance."

The Importance of Location

In the city, the location factor is embroidered with a mass of qualifications established by human choice. The city area is divided by choice and convenience into residential, office, retail, industrial, and other areas. Within these areas, further constant choices establish differences between the intensity of desire for ownership and uses. Each site within the community is related to all the other sites in the community in somewhat the same way that a cog in a machine is related to the other cogs in the machine. There is a certain interdependence existing between the sites; and location, therefore, becomes a matter of prime importance.

A change in transportation routes may affect relative site values over a considerable area by making one corner more accessible than another for a retail store and thereby drawing a large number of persons to it. Other sites in the neighborhood may be benefited and still others severely damaged by the change in transportation facilities. Transportation, therefore, is inseparably interwoven with this problem of site value because it is a major determinant of site use.

Site value is the special location value that comes from a multitude of human choices as to the quality of a particular plot of land. The choices are influenced not only by convenience and accessibility but also by the fact that every site is different. Each site is unique. The supply of a particular site cannot be increased or duplicated to meet the competition of users. The site cannot be moved to another place in the community. All the physical qualities are weighed by economic or customary choices—and the sum total is *situs*. Good, bad, or indifferent, each must be used where it is. If a change in popular whim or in transportation routes sends traffic in another direction away from a once-favored spot, there is little that the owner can do to recover his lost situs quality except to attempt to influence choice through advertising or other development of the site's possibilities.

Since situs is the consensus of the choice of many persons as to the quality of a particular site, the more persons who agree in the choice, the more secure is the situs quality of a particular lot. Once determined, situs can be but little influenced by individual action, but it can be quickly affected by public action—the building of a new boulevard or the reconstruction of slum areas, for example.

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The 1936 Appraisal Courses

By GEORGE L. SCHMUTZ, M. A. I.

THE second annual Summer Courses in Real Estate Appraisal, conducted by the American Institute of Real Estate Appraisers at the University of Chicago, came to a successful termination on Friday, August 28, after a six-weeks session, divided into three terms of two weeks each.

Eclipsing the Courses of 1935 in many respects, the feature of this year was the addition of a new two-weeks term dealing with advance appraisal technique as particularly applied to major investment properties, such as downtown office buildings.

The first four weeks of the Courses—Terms I and II—were repetition of the work of last year. Term III, the advance Course, was entirely new, and the text material, consisting of 800 odd pages, was especially prepared by the Education and Research Committee under the guidance of its Chairman, K. Lee Hyder, of Milwaukee.

The Courses just completed, like those of last year, featured the Case Study Method of instruction—lectures in the morning with actual appraisal experience developed in the afternoon. In Term III, one of the Case Study Properties appraised by the students was a forty-eight story office building located in the financial district of Chicago.

The members of the faculty were:

George L. Schmutz, M. A. I., Dean,
Valuation Engineer, Los Angeles, California.
Herman O. Walther, M. A. I.,
Appraiser, Chicago, Illinois.
Ayers J. du Bois, M. A. I.,
Appraiser, F. H. A., Washington, D. C.
Thurston H. Ross, M. A. I.,
Appraiser, Los Angeles, California.
Harry S. Cutmore, M. A. I.,
Appraiser, Chicago, Illinois.
Ralph V. Field, M. A. I.,
Appraiser, Galesburg, Illinois.

Enrolled for Terms II and III were four Realtor members of the Pittsburgh, Pennsylvania, Real Estate Board, who competed for cash prizes offered by that Board for those members receiving the highest grades in the examinations. There were four of these examinations plus two appraisal reports, thus making six examinations in effect.

In the belief that the scope and character of these examinations will be of interest to the reader, typical questions and problems selected from the examinations given in the several courses are listed here (and numbered for clarity):

1. In appraising a single-family residential property—state the order of each step in your procedure and explain the reasons for each step.
2. In a brand new house which was a "proper improvement" but which was functionally deficient because of poor room-layout, how would you proceed to measure in dollars the functional depreciation, or penalty, or loss in value?
3. Explain your understanding of the "reproduction cost" approach and state its good and bad features, when its use is helpful, and when not helpful.
4. Write at least 100 words, but not more than 150, about the "Science of Economics" and its relation to the appraisal of residential property.
5. (a) What major principle is affirmed by the "Law of Diminishing Returns"?
   (b) What is its practical significance in valuation procedure?
6. (a) What is meant by "Surplus Income" in real estate appraising?
   (b) Should it be treated differently from other income? Why?
7. How does the matter of "Comparison" enter the reproduction approach to the estimate of value?
8. (a) What is "depreciation," and what *causes* produce it?
   (b) Of what practical importance in appraising are depreciation considerations?
9. (a) What matters exert the greatest influence in tending to fix the "capitalization rate"?
   (b) What should be the maximum sinking fund rate employed in appraising real estate? Why?
10. Briefly explain your understanding of the following, that is, what they are, their uses, and the general principle involved:
    (a) The Compound Interest Valuation Premise (Inwood's annuity).
    (b) The Hoskold Sinking Fund Valuation Premise (annuity).
    (c) The Present Worth of One.
    (d) The Amortization Rate (sinking fund).
11. Briefly point out the good and bad features of the following:
    (a) The Land Residual Approach.
    (b) The Building Residual Approach.
    (c) The Property Residual Approach.

12. In appraising a property the appraiser found the following conditions:
    (a) The lot was 50′ x 150′ and on a major traffic arterial highway. It would be worth $7,000 as a business lot, which was its highest use.
    (b) The lot was improved with a new stucco bungalow which cost $3,000, completed about six months previous.
    (c) The reproduction cost of the property was $10,000; the capitalized value, based upon the rent produced by the house, was $3,000.
    Question: What market value would you assign to this property? Why?
13. What bearing, if any, has the income level of people in a residential district upon residential property values in that district? Why?
14. How would you measure the extent of "over-improvement" in the case of a single-family residence?
15. From the data shown below, what value would you place upon a vacant residential lot? Why?
    (a) District strictly single-family structures with no change in use indicated.
    (b) District 98% built up with similar houses.
    (c) Houses are about 30 years old, and today's new reproduction cost would be about $3,500.
    (d) No sales for several years.
    (e) Rent $50 per month unfurnished.
    (f) There are no building restrictions.
16. (a) What is the primary purpose of "reconstructing the operating statement"?
    (b) What is the basis upon which such reconstruction is made?
17. In a block devoted to retail business uses a certain lot is fairly worth $500 per front foot. An adjoining lot is fairly worth $300 per front foot. State 4 reasons which might account for the difference in front foot value.
18. (a) In the "taking" of private property for a public use, there are two common bases or methods of damage estimation. Name and illustrate each.
    (b) What is "severance" damage? Explain and illustrate.
    (c) What is "plottage" value? Explain and illustrate.
19. (a) What is the practical reason for a "Code of Ethics"?
    (b) Name three acts which are considered unethical by the American Institute of Real Estate Appraisers.
    (c) State why they are considered unethical.
20. Problem:
    Mr. A. owns the fee simple of a parcel of vacant land which was leased to Mr. B. on August 30, 1926, for a term of 25 years, at a rental of $2,500 a year, payable at the end of each year, net to Mr. A. during the first five years; $3,000 per year net during the second five years; $3,500 per year net during the third five years; $4,000 per year net during the fourth five years; and $4,500 per year net during the remainder of the term. Assume that the lease is adequately secured; that the future will be like the present; that a reasonable interest rate is 6%; and that the land is now (August 30, 1936) worth $70,000.
    Question: What values would you assign to the "Lessor's Interest" and what value to the "Lessee's Interest" in the land, as of August 30, 1936?
    Note: Factors for P. W. of $1.00 per annum are as follows:

5 years....	4.21	15 years....	8.71
10 years....	7.36	20 years....	11.47
		25 years....	12.78

    Factors for P. W. of $1.00 are as follows:

5 years....	.747	15 years....	.417
10 years....	.558	20 years....	.311
		25 years....	.233

21. Problem:

DATA

This Building is a court type (U-shaped) 3-story brick English Basement Apartment building of the "walk-up" type. It has 24 unfurnished rentable units of which 6 have 5 rooms each and the other 18 have 4 rooms each. It is owner-operated. There is a 4-room flat in the basement which is occupied by the janitor.

The apartments are modern, with built-in bath tub, pedestal lavatory, tile floors, and wainscot in the bath room; "in-a-door" beds in the 4-room apartments; good grade of mechanical refrigeration; floor plan and design are standard; large living room and other rooms acceptable.

Location, 8100 block on Ellis Avenue in Chicago. Area commonly known as "Chatham Fields."

Lot has 100′ of frontage on Ellis Avenue; it has 125′ of depth.

Building would have a reproduction cost, new, today of $60,000. It is 12 years old and in a good state of repair.

Neighborhood is good, from a residential standpoint. There are adequate schools, churches, theatres, shopping facilities, etc., conveniently accessible, within one block. People are Americans of white race and of

medium living standard; no change indicated.

Neighborhood is about 80% built up with multiple family residential structures which are similar as regards age, size, style, cost, and condition.

Transportation is excellent. Area is served by the Illinois Central suburban electric line.

An audited statement of incomes and expenses actually incurred is hereto attached. It is assumed to be correct.

You may introduce any assumptions which are not inconsistent with the data given.

(a) Reconstruct the accompanying "operating statement."
(b) Show your capitalization analysis and value estimate.
(c) State your reasons for selecting the capitalization rate employed.

ACTUAL OPERATING STATEMENT
YEAR 1934

(As per Auditor's Statement)

INCOME	Actual
Rent Schedule—100% occupied	$12,240
Rent actually collected including rentals collected for previous years	14,340
Collection Loss (1934)	$ 120.00
Vacancy Loss (1934)	1,100.00
	1,220
Gross Operating Income	$13,120
Income from Sign on Roof	100
Total Gross Income	$13,220
EXPENSES	
General taxes (½ of year 1932 and all of year 1933)	$ 2,100
Insurance—5 year policy (fire)	416
Interest on Mortgage	1,200
Prepayment on Mortgage	250
Special Assessment (Annually—3 years more)	90
Repairs—New Roof (10 Year Guarantee)	420
Coal	1,530
Water	200
Window Shades—New	204
Electricity	140
Janitor	985
Outside Painting (each 3 years)	150
Decorating Apartments (An annual expense)	1,400
Payments on Electric Refrigerators (Annually—2 years more)	600
Stair carpet—new	160
Janitor's Supplies	38
Boiler Repairs	135
General Repairs	125
Gas Stoves—(2) New	80
Miscellaneous	95
Total Expenses	$10,318

SUMMARY

Gross Income as Above	$13,220
Total Expenses as Above	10,318
NET INCOME	$ 2,902

22. Problem:

Show the accompanying operating data in statement form to indicate the net income to REAL ESTATE ONLY. Construct it as you would present it in an appraisal report, making notes and comments as you may deem necessary. The figures shown are to be accepted as correct, as actual expenditures, although not necessarily proper charges.

DATA

The subject property is a six-story, steel frame apartment house having 54 rentable units, all furnished. It is 10 years old and has an estimated remaining useful life of 30 years. The property is situated in a mid-western city of about 200,000 people, in an apartment house district, and among houses of similar age, style, cost, design, and condition. No unusual adverse factors are in evidence. It has 8 stores, exclusive of the basement stores (Items 3, 4, and 5 below), which operate principally for the convenience of the tenants. It also has a garage. The apartments furnished the manager and engineer have no commercial value.

The statement furnished the appraiser is as follows:

Income from:	
Item 1. Rental of Furnished Apartments	$57,000
Item 2. Rental of Store Rooms	12,000
Item 3. Rental of Commissary and Barber Shop	4,000
Item 4. Rental of Dining Rooms	3,000
Item 5. Rental from Garage	2,000
Item 6. From Special Services (Maid, etc.)	1,000
Item 7. From Telephone	2,000
Item 8. From Miscellaneous Sources (Commissions on Milk, Laundry, etc.)	2,000
Actual Income per Year	$83,000

Note: It may be assumed that the apartment and other rentals shown above are fair and reasonable and that the losses from vacancy and uncollectible rentals are reflected in the above figures, which are assumed to be the average expected gross incomes.

Expenditures—Actual	
Janitor	$ 2,000.00
Maids	3,000.00
Engineer	2,400.00
Fuel	1,600.00
Light	2,000.00
Ash Removal, Etc.	200.00
Laundry and Dry-Cleaning	2,000.00
Building Repairs	400.00
Decorating	5,000.00
Manager's Salary (and apartment)	2,700.00
Bookkeeping	1,200.00
Telephones	1,600.00
Refrigeration Repairs	200.00
Houseboys	2,500.00
Power	1,500.00
Elevator and Electrical Repairs.	500.00
Taxes and Insurance	2,100.00
Gardener	600.00
Water	900.00
Gas	2,000.00
Heating and Hot Water System Repairs	300.00
Auditing and Tax Service	300.00
Membership Dues	100.00
Plumbing and Fixture Repairs	250.00
Furniture and Furnishings Repairs	250.00
Supplies	1,200.00
Total Expenditures	$36,800.00

As a result of his investigation the appraiser concluded as follows:

Re: Janitor
That his salary conforms to the union scale and that the actual expenditure shown is reasonable.

Re: Maids
That this service includes general house maid service which is charged in the rent, and also special maid service which is paid for extra. This extra service income is shown in Item 6 of the gross income. The appraiser concluded that the *cost* of this extra service was $1,000 a year.

That the expenditures shown for the other items were reasonable except for those noted below:

a. that the charge for advertising should average $500 per year.
b. that building repairs should average $1,200 per year.
c. that elevator and electrical equipment repairs should average $250 per year.
d. that plumbing and plumbing fixture repairs should average $200 per year.
e. that heating and hot water system repairs should average $150 per year.
f. that the maintenance and repairs of furniture and furnishings should average $1,350 per year.
g. that the maintenance and repairs for refrigeration, painting, and redecoration should be about $400, $600, and $800 per year respectively.

In addition to the foregoing, the appraiser estimated that the amount of deferred maintenance (or accumulated maintenance and repairs) was $2,500; that a proper reserve for depreciation of the structure (exclusive of equipment and replaceable shorter-lived items) would be $7,000 a year; that the reserve for the replacement of the equipment in the structure would be $2,000 per year; and that the reserve for replacement of the furnishings and furniture would be $6,000 per year.

The appraiser also discovered that the taxes and insurance payments shown were for 1½ years, and that there was a special assessment lien of $1,600.

With this data, reconstruct the operating statement for appraisal purposes, i.e., purchase or sale value estimate, considering real estate only.

23. Problem:
This problem requires the use of the data developed in No. 22.

(a) Select a *capitalization rate* for processing the real estate income into capital value, showing the manner of determination of the rate and reasons therefor.

(b) Compute the *capitalized value* of the property, showing your detailed computations, including present worth factors, etc.

CAPITALIZATION RATE DATA

Inquiry into the money market disclosed that the cheapest First Mortgage money available for financing or refinancing similar properties in the area could be had on the following bases:
a loan of 40% of full value at 4.75% interest
a loan of 50% of full value at 5.00% interest
a loan of 60% of full value at 6.00% interest

By a similar line of inquiry it was found that Second Mortgage money for the same purpose was available as follows:
30% of full value after a 40% First Mtge. at 6% interest

25% of full value after a 50% First Mtge. at 7% interest
20% of full value after a 60% First Mtge. at 8½% interest

Further inquiry disclosed that equity money above an 80% loan or combination of loans (i.e., junior to it or them) was available at 12% interest.

One other bit of data was found—that 5½% First Mortgage Bonds on similar properties in the same area, representing about 50% of the full value of the properties, were selling at $105 for a $100 bond (ignoring date of maturity for sake of simplicity).

ENROLLMENT BY STATES

It is interesting to note that there were students enrolled from twenty-four states, the District of Columbia, and Canada, as shown in the following tabulation.

	Term		
STATE	I	II	III
Arkansas	..	..	1
California	1	4	2
Canada	..	1	..
Connecticut	..	..	2
District of Columbia	1	1	1
Florida	1	2	3
Illinois	7	6	7
Indiana	..	..	2
Iowa	2	..	..
Kansas	..	1	..
Kentucky	1	2	..
Massachusetts	..	1	..
Michigan	..	1	2
Minnesota	1	..	..
Missouri	..	1	3
Nebraska	1	1	..
New Jersey	..	1	1
New York	2	2	2
Ohio	4	8	3
Oklahoma	..	..	1
Pennsylvania	6	6	8
South Dakota	..	1	..
Tennessee	1	3	..
Texas	3	1	..
Utah	1	1	..
Virginia	1	1	1
Totals	33	45	39

♣ ♣ ♣

Comment and Discussion

Babcock—ON THE ANNUITY SYSTEM

IN Thorson's article on "Rationalizing Appraisal Practice" in the July *Journal* appears the following:

"It was not surprising that a man of Babcock's outstanding ability should eventually abandon a method (the annuity method) so unscientific and so impossible in its practical application. The opportunity to correct his early teachings came when he was entrusted with the working out of a valuation program for the F. H. A. Here he has done an excellent job."

Of course, I understand that the pages of the *Journal* are open to all points of view and contributors are permitted to advance theories regardless of their general acceptability. I wonder, however, if the editorial policy of the *Journal* should permit writers to announce changes of front for others—especially when there is no change.

It is apparent that Thorson's gratuitous pothering should not be permitted to take this form. I have at no time abandoned my adherence to and advocacy of the annuity system. All the research of the Valuation Unit of the Federal Housing Administration is directed specifically at means to adapt the annuity principle to dwelling valuation.

I sincerely trust that you will publish this and allow me to slap lightly the editorial policy which permitted this *faux pas*.

FREDERICK M. BABCOCK, M.A.I.
Washington, D. C.
August 5, 1936.

Quintana—ON RATIONALIZING APPRAISAL PRACTICE

THE article entitled "Rationalizing Appraisal Practice" by Ivan A. Thorson, M.A.I., in the July issue of the *Journal*, condemns the "annuity method," a currently accepted standard of appraisal technique, and champions in turn a method created by the author.

I thoroughly disagree with his point of view and with the character of his logic and reasoning; some of the assertions have no place in a technical discussion.

No better reply to it could have been written than the article by Ayers J. du Bois, M.A.I., entitled "Bracketing in Appraising," and published in the same issue of the *Journal*.

There are many contradictions in Mr. Thorson's article, and many statements are unsupported by facts. His "new" method is based upon the same old troublesome "bugaboo" commonly called depreciation allowance, appearing now in a new dress under the name "AM" (amortization charge) or "charge-off."

This method of valuation is illogical, because, as the *value* is the *end and object* of valuation, the process cannot include an item of expense based upon the answer. In addition, it is based upon a presupposed form of investment (reinvestment of the sinking fund) not related to the real estate property.

The annuity method was adopted and has been in use for many years by prominently qualified appraisers, such as Babcock, Schmutz, du Bois, Kniskern, Reeves, Levy, Hyder, Burrows, Ralph Field, and many others, who have for years exemplified the use of the annuity method as a logical and practical approach to valuation.

There is nothing to prove the assertion that the annuity method "assumes real estate to be of more or less homogeneous character." It is not true that "those" (presumably Babcock's) premises are predicated upon the "false" assumption

that "the improvements on real estate always decline in value," for in Babcock's Premise No. 1, the value does not *decline* but *ceases* at a predetermined time.

Neither do I find an instance when he or others advance the theory that land, "because of its physical indestructibility also has a *constant* earning value and may therefore he capitalized in perpetuity." If in most of his examples of valuation procedure he adopts that assumption (a plausible and very often probable one), he also makes it contingent upon the assertion that the value of land is always fundamentally residual and predicated upon "that available use and program of *future utilization* . . . which produces the highest present land value" (highest and best use).

It is worthy of note that in Mr. Thorson's example of the "King Apartments," land is treated as having a constant earning value and capitalized in perpetuity.

It may be that the cost of a building erected in 1915 was less than in 1920 and that the present reproduction cost would show the difference in *dollars*, but from the point of view of 1915, which is the inception of its *physical* being, the *physical* value has nevertheless declined.

Whether or not structural costs vary should not be of consequence in valuation, for no experienced appraiser would use in his calculations abnormal replacement costs without considering cost trends, the level of predominating cost recurrences, and otherwise the controls of "bracketing" as emphasized in Mr. du Bois' article.

The question is asked: "Who can say that the rents from any new property will remain fairly constant over a long period of time?" The answer may well be a repetition of the question, for, who does? A building income premise certainly does not. It is not intended to be a forecast of actual income. It merely presents *building value* in terms of returns over a period of time, which are proportionately related to the prediction on which the valuation is premised, based upon the most plausible assumption. It is no more a prophecy of what the rents *will* be than a valuation is of what a property *will* sell for.

The graph showing John P. Hooker's history of an office building does not in itself prove anything to support Mr. Thorson's statements, because it fails to show proper related data. As valuation presupposes able and competent management, mention should have been made of whether the improvements were of well conceived plans, economic suitability at time of completion, whether leases were made at proper rentals, if timely alterations and modernization were made, etc., etc.

There are in some of our large cities colossal or monumental new improvements, some of them of international fame, the economic history of which may not be different than Mr. Hooker's graph, but what does that prove?—simply misconceptions in planning or wrongly applied valuation methods prior to construction.

The syllogistic forms of deductive reasoning used by Mr. Thorson are fallacious disputations; for example, reading his sophistic reasoning of the "annuitists":

Major Premise.

"All animals have four legs"—(All improvements decline in value).

it is noted that whereas he formerly quoted "the *physical* value of an improvement will always decline with the years," he now leaves the word "physical" out, therefore making the syllogism appear ridiculous.

The statement reading "a man of Babcock's outstanding ability should eventually abandon a method so unscientific . . . " is in need of corroboration and will undoubtedly be answered, but that "The opportunity to correct his early teachings came when he was entrusted with the working out of a valuation program for

the F.H.A." is ostensibly a misconception and a mixup between *appraisal methods* and detailed procedure of *data interpretation.*

One, the former, refers to technique in valuing returns; the latter, to a method of market comparisons and mortgage risk rating.

What about the amortization charge asks the author subtly implying that periodic charge-offs (amortization) are generally accepted as a basis or as a function in valuing all real estate properties. It is well established and understood by many that arbitrarily selected allowances for depreciation or amortization are merely accounting devices inasmuch as depreciation or amortization results, theoretically at least, *after* valuation instead of being the basis of the valuation.

Finally, it should be stated once more that the annuity method, in estimating values that can be returned, automatically solves the problem of depreciation or amortization and that Mr. Babcock as well as Mr. Schmutz deserve due credit and recognition for producing tables of plausible assumptions, which previously had been dealt with in individual and uncertain manner.

ISIDORO QUINTANA, M.A.I.

Hackensack, N. J.
September 12, 1936.

Kissack—ON PRICE AS A MEASURE OF VALUE

TERMINOLOGY is perhaps unimportant provided the same concepts are intended; however, in the following description of appraisal procedure, changes have been made in the definition of some terms to clarify the existing confusion in the mind of this writer, but only when broad acceptance of a term and the understanding of financial and real estate interests and the public are generally in accord with such change.

It is self-evident that price, which is the amount of money a property commands in exchange, represents the sole economic measure of the total utility of a property, of which total utility, the "utility for use," is a phase. Also, when a voluntary sale is made in a market which permits the free interplay of supply and demand, the resulting price is the market price of the property. Therefore, price, which is the sole measure of utility, is also a definite and precise measure. Price and market price are indicative of a sale.

On the other hand, value in its generally accepted meaning (not the specific value in exchange which economists define as the rate at which a property exchanges for other commodities) is the estimated equivalent for a property regardless of whether it is for sale or not. The appraiser or valuator fixes value by estimating its price. If a property cannot be sold, it must be estimated as having no value. Market value is that estimated price at which a property could be sold if placed on the market, usually estimated from the voluntary sales of comparable properties. Value is, therefore, an approximation and is not a definite and precise amount, such as price. If market price showed a marked increase in a different market, appraised market value would show a like increase. This is not necessarily true in the specific concept of "value in exchange."

Real properties possess naturally and through design a "utility for use" which renders continuous benefits and returns throughout their long economic life. The appraised "value for use" is the estimated equivalent of this "utility for use" calculated by finding the "present worth of all of the rights to future benefits arising from ownership." "Utility for use" being a quality inherent in the property itself,

the "value for use," if desired, could be properly designated as the present worth of a property. Present worth can also be estimated from the present cost to reproduce new by deducting the estimated total accrued influences of depreciation.

There can be no estimated market "value for use" because it would be impossible to place any limited phase of the property on the market. "Value for use" and market value as herein described are not synonymous in meaning regardless of whether a sale is inferred or contemplated.

Market value may equal "value for use" in amount, or it may be above or below it, depending upon how the economic forces of supply and demand determine the variable relationship of rents and market prices to costs. This "market variable" representing the difference between market value and "value for use" is clearly indicated by indexes of rents, values, and costs; it is measurable only by actual test. Such tests on many properties of different types were made during the past three years by Real Estate Analysts, Inc., whenever it was possible to secure the necessary data as to market price, rents, costs, etc. The results of such tests revealed that the "market variable" was a deductible influence varying in amount from ten per cent to fifty per cent of the estimated "value for use," depending upon the type and condition of the property, although the amount remained fairly constant among comparable properties.

The appraisal of real properties is not an exact science, although much of the information is of a technical nature and the coordination of all factors requires a scientific approach.

As valuation signifies an estimate, it is self-evident that the greater the number of items estimated which make up the whole, the more accurate will be the final result. For all items which require assumptions, only the reasonable probabilities, never the possibilities, are used.

It is not believed that any specific formula will be developed for the determination of real estate values. Many factors affect value, and many assumptions are necessary, all of which must be analyzed, balanced, and harmonized into a final conclusion and judgment of worth and value. It is found that it is difficult to estimate closely the proper influence attributable to any one of the several factors affecting value and that, after trial, adjustments may be necessary to bring it into harmony. For example, the capitalization or discount rate first used may require revision after trial.

On the form shown on page 441, which represents one of the work sheets of an actual appraisal of a small, four-family flat built twelve years ago in St. Louis, several of the more important factors are marked with a circle. The relative values of all of these items are estimated from actual measurement, observation, analysis, current indexes, tests, and other available data relative to the property and its environment, economic trends, market conditions, etc. After trial and adjustment, all factors are brought into balance and into accord with the facts and the assumptions which are considered reasonable probabilities, and a final conclusion is drawn. In the example submitted, this conclusion is as follows:

Reproduction Cost New (including land)	$15,058.00
Depreciation Deductions	2,558.00
Value for Use—Present Worth	12,500.00
Market Variable	2,500.00
Market Value	10,000.00

It is found from experience that the present worth and the market value herein described are accepted as being in line with the general understanding of these terms.

CONDITIONS AFFECTING VALUE OF PROPERTY

SUITABILITY OF IMPROVEMENTS TO SITE: UNDER IMPROVED ☐, SUITABLY IMPROVED ☒, OVER IMPROVED ☐
SUITABILITY OF IMPROVEMENTS TO NEIGHBORHOOD: UNDER IMPROVED ☐, SUITABLY IMPROVED ☒, OVER IMPROVED ☐
EASEMENTS ON PROPERTY none, SPECIAL DEED RESTRICTIONS none
GRADE OF CONSTRUCTION average, SUITABILITY OF PRESENT USE TO ZONING OK
REMODELING AND MODERNIZATION none, DATE
CONDITION OF PROPERTY: WELL KEPT ☒, AVERAGE CONDITION ☐, POORLY KEPT ☐ (SEE NECESSARY REPAIRS)
ASSESSED VALUE: LAND $ 960, IMPTS. $ 7700, TOTAL $ 8660, TAXES 1 @ 35, $ 240.00

APPRAISAL OF PROPERTY - SERVICE OR NON-INCOME

OCCUPIED BY OWNER ☒, TENANT ☒, VACANT ☐, RENTS PAID 3 @ $30.00 = owner occupies one

TOTAL COST TO REPRODUCE PROPERTY NEW (SEE PRECEDING PAGE) $ (15,058)

NECESSARY REPAIRS	DEDUCTIONS		
	STRUCTURAL DETERIORATION (15)%	$ 1,938	
	OBSOLESCENCE (4.3)%	620	
None	DESIGN	--	
	ENVIRONMENT	--	$ 2,558
	[redacted] Present Worth		$ 12,500
	ADDITION ☐, DEDUCTION ☒, FOR MARKET		$ 2,500
	APPRAISED MARKET VALUE AFTER REPAIRS		$ 10,000
TOTAL $ --	PRESENT APPRAISED MARKET VALUE		$ 10,000

APPRAISAL OF PROPERTY - INVESTMENT

PRESENT RENTS: STORES	OFFICES	DWELLINGS	GARAGES
@ $	@ $	4 @ 27.50 $ 110	4 @ 2.50 $ 10.00
@	@	@	@
@	@	@	@
@	@	@	@
@	@	@	@
@	@	@	@
TOTAL MO. RENT $	TOTAL MO. RENT $	TOTAL MO. RENT $ 110	TOTAL MO. RENT $ 10
VACANCY $	VACANCY $	VACANCY $ none	VACANCY $ none

PRESENT GROSS INCOME FROM PROPERTY $ 1440, PRESENT VACANCY $ none, PRESENT DELINQUENCY $ none
RENT INCLUDES IN ADDITION TO POSSESSION AND OCCUPANCY: RESIDENT MANAGER ☐, JANITOR SERVICE ☐, HOT & COLD WATER ☒, ELECTRICITY ☐, GAS ☐, ELECT. REFRIGERATION ☐, GAS STOVE ☐, INCINERATOR ☐, LOCKER SPACE ☐, USE OF LAUNDRY ☒, GARAGE ☐, FURNITURE & FURNISHINGS ☐, LINENS, DISHES, SILVERWARE ☐, MAID SERVICE ☐, LAUNDRY SERVICE ☐.
ESTIMATED PERCENTAGE OF PRESENT RENTS TO FUTURE LEVEL: STORES ____, OFFICES ____, DWELLINGS (70), GARAGES (70).
ESTIMATED PERCENTAGE OF NORMAL VACANCIES: " " (90), " (90)

NECESSARY REPAIRS	GROSS REVENUE: PRESENT RENT PER MONTH	PERC. NORMAL	PERC. OCCUPANCY	
None	STORES x 12 +	x		$
	OFFICES x 12 +	x		$
	APARTMENTS 110 x 12 +	70 x	90	$ 1,695
	GARAGES 10 x 12 +	70 x	90	$ 154
$ ---	EFFECTIVE GROSS NORMAL INCOME			$ 1,849

AVERAGE ANNUAL EXPENSE MATURED PROPERTY					
#310 JANITOR	$ --	#410 GENERAL BLDG.	$ 60	#610 PROPERTY TAXES	$ 240
#320 UTILITIES	40	#420 TENANTS SPACE	110	#630 INSURANCE	40
#330 ~~REPAIRS~~ Ashes	9	#440 MECH. EQUIP.	20	#650 FEES	
#340 MANAGEMENT 5%	95				
#350 ELEVATORS					
#300 TOTAL OPERATING EXP.	$ 144	#400 TOTAL MAIN. & REPAIRS	$ 190	#600 FIXED EXPENSE	$ 280
TOTAL PROPERTY EXPENSE					$ (614)
VALUE OF PERSONAL PROPERTY	NORMAL NET INCOME - BEFORE INTEREST DEPRECIATION & AMORTIZATION				$ 1,235
FURNITURE, FURNISHINGS ETC.	(7%) return on land value ($1600) = 112			1,600	
None	1235 - 112 = 1123 return on improvements				
	$1123 per yr. for (25 yrs.) will amortize				
	$12,000 and pay a return of (6%)			12,000	13,600
	(Deduct loss) in income before present				
	rents reach appraised future level,				
	estimated (3) yrs.				1,100
	[redacted] Present Worth				12,500
	ADDITION ☐, DEDUCTION ☒, FOR MARKET				$ 2,500
	APPRAISED MARKET VALUE AFTER REPAIRS				$ 10,000
MARKET VALUE $ --	PRESENT APPRAISED MARKET VALUE				$ 10,000

In many cases the appraised market value is often checked by the actual sale of the property. Mortgage bankers are interested in these two values because the former gives the sound basis for a loan, while the latter represents the liquidating value of the property.

Nothing more is claimed for the procedure briefly outlined than that it is one of many approaches to the solution of a difficult problem. If it could be called a technique, its probable designation would be the technique of "trial and error." Its submission is made with considerable hesitancy in that some of the definitions employed challenge those used in the *Preliminary Report on Appraisal Terminology* prepared by the Committee on Education and Research.

A. B. KISSACK, M.A.I.
St. Louis, Missouri.
September 9, 1936.

The Abundant Life

By Woodby X. Pert

HAVE you heard the gossip going roun',
It's being told all over town—
The love affairs of Miss Ann Uity?
They say "Doc" Inwood was in strong
Until he went and "done her wrong,"
But there seems to be some incongruity.

A charming lass—it was a shock
To think that she'd fall for the "Doc"
Who's simple, plain, and very ordinary.
They say it happened on a ride,
And I felt then they must have lied,
Since for years he tried to get the girl to marry.

For don't forget that she's been seen
From time to time in the machine
In which Professor Hoskold "double-dates,"
That "smoothie" sent to represent
Our bureaucratic government,
And you know no one can say just how *he* rates.

Now the "Doc" has been my friend since birth,
He's brought me all my present worth,
So I thought I'd speak to Miss Ann Uity;
To put her back upon the track
With a man who'd always bring her back
For fear she'd fall in perpetuity.

"My dear, you ought to settle down
With the man that comes from your home town,"
I said, "Your future life depends upon it;
Unless you would a spinster be
'Doc's' the one, 'tween you and me,
That slick two-time Professor's out—dog-gone-it."

"Oh! Yeah?" yawned Miss Ann Uity,
"Why all this ambiguity?
I'm leaving town and I'm not coming back.
I want to live well while I can,
I'll not be chained to any man,
Surely not to a professor or a 'quack'.

"For this is Nineteen Thirty-Six—
N. D. with all its magic tricks,
And a dollar now's worth less than sixty cents.
What's the good of all these fables,
These old men and all their tables,
Who knows just where I'd be some ten years hence.

"Besides, I'm going to join a show,
To team with a juggler that I know,
His name is Townsend, and the act he's fathered
Is simply perfect, for a fact,
Each night he says the house is packed,
So why indeed should I get hot and bothered?"

So there, my friends, the tale is told,
I can see I'm getting old,
Can't understand these modern mathematics;
When Professor Hoskold gets the gate
Old "Doc" Inwood can turn his rate
Of interest to the state of my rheumatics.

* * *

What to Read

Comments on recent surveys, books, and articles of interest to real estate appraisers.

CARRIE MAUDE JONES, EDITOR
Librarian
American Institute of Real Estate Appraisers

Land Use and Local Finance

WHILE real estate appraisers are concerned primarily with the determination of land value, they are likewise concerned—or should be concerned—with the implications of the valuations they make.

This aspect of the appraisers' problem takes on special significance now when attention is being focused on land planning and land utilization. For accurate determination of land values is basic to wise planning as well as to economic utilization.[1]

If present tendencies continue, it would appear that a new era in land utilization is dawning—an era in which land use will be developed on a less haphazard, less happy-go-lucky basis than in the past. Recent experience and new conditions will militate against reliance upon increased values to correct whatever mistakes an easy-going policy of valuation may have produced. They will also demand new and better techniques for handling land problems.

A recent study, *Land Use and Local Finance*,[2] in Westchester County, New York, while not dealing with the valuation problem as such,[3] is intensely illuminating as to the implications of past valuation policies. It is further significant as an example of research based upon currently available information; no exhaustive survey was instituted to collect new data. In short, similar information for any area may be gleaned from records now available.

The study in question illustrates the relation of land use to local finance. It shows the unmistakable effect of past policies concerning land use and land valuation on the present financial dilemmas of local governments. It could be reviewed as a study in public finance; or as a plea

[1] "Land values determine what are their [land resources] best uses. Their correct determination, therefore, as a guide for land use is one of the important functions of a scientific appraisal system. Such values also would furnish a guide to buyers and sellers of land and would prevent to a considerable degree the tendency for land values to get out of line with other values." (Black, Albert G. and Black, John D., "The Principles Involved in Farm-Land Appraisal Procedure for Loan Purposes," 2 *Journal of Land & Public Utility Economics* 396 at 406 October, 1926.)

[2] This study, released in December, 1935, is one of a series of reports made by the Institute of Public Administration for the Westchester County Commission on Government.

[3] The primary data of the study are assessed valuations of real estate in Westchester County.

for more stringent control of land use; or as an analysis of the results of the valuation process. For present purposes the latter approach is chosen.

THE REPORT SUMMARIZED

The basic data for the study were taken from the assessment rolls for 1934—i. e., the assessed valuations for the 1934 tax levy—and the properties were classified as vacant and improved.[4] The data were supplemented by information on tax delinquency in terms of numbers and valuations of properties in arrears and total amount of arrears for all levies, including special assessments. These were taken from the records of the town receivers.

The statistical findings of the *Report* are summarized in four tables. They show that taxable valuations of vacant lands constitute 11.26 per cent of the total taxable values for the County. In terms of numbers of properties, vacant properties were 59 per cent and improved properties 41 per cent of the total number of parcels on the tax rolls in 1934.

With respect to arrears of taxes, vacant lands accounted for 51.1 per cent of the total amount of delinquent taxes and assessments; in terms of numbers of properties, 79 per cent of the total parcels in arrears were vacant lands.[5] The other group of properties which was a major cause of tax arrears consisted of large apartment and business buildings. In short, properties which are most subject to speculative influences—that is, whose prices are farthest out of line with actual values—appear most likely to contribute to tax arrears.

The results of these conditions are reflected in high local debt and tax rates. Municipalities are struggling under an enormous debt burden based upon past assessed valuations. While some of this debt may be refunded at lower rates, immediate relief for local governments is not in sight, for assessed valuations have been declining more rapidly than the debt burden itself. Some relief—how much is difficult to estimate—may be expected from new building, but a very considerable volume of construction will be necessary to be of material aid to counties and municipalities.

Clearly, this state of affairs calls for constructive action. While the data here reviewed describe the situation in one area only, general experience and observation reveal similar conditions of greater or less severity in other suburban areas as well.

SIGNIFICANCE OF THE STUDY

Special importance attaches to studies of this sort at the present time. The real estate market is in a transitional stage. It is swinging out of the depression into what is referred to currently as "the coming boom in real estate." Plainly, many of the prices at which properties are now held will not be immediately realized. Readjustments will be necessary, and these can be adequately made only upon the basis of the completest possible array of facts. Also, values in the future will be influenced by new conditions, such as the declining rate of population growth; the development of land-planning techniques, which in some instances will make present layouts outmoded and subject to replatting; and the inauguration of new controls exercised over land utilization.

With respect to establishing a better factual basis for evaluation of real estate, the *Report* in question does two things. It shows that much valuable information of interest to appraisers, lenders, and investors may be had for the gathering.

[4] Data for a further classification of improved properties according to specific uses were not readily available.

[5] Furthermore, many of these vacant parcels had been in arrears since 1925, and some as far back as 1918.

The data presented here and much more that are equally pertinent are lying buried in the public records awaiting analysis and interpretation. The *Report* also translates many hypotheses which have been held regarding land values and their relation to land use and local financial problems into facts which can be the basis of future policies.

Additional data on land uses are particularly valuable to the appraiser. Land-use data throw light upon the supply side of the supply-and-demand equation as applied to land. This is an aspect of the real estate valuation problem which has been given too little weight in past evaluations. The tendency has been to price real estate too largely in terms of demand, i. e., what can be obtained for it. If data on actual use of various parcels of land are available, the influence of potential uses—frequently quite out of line with possible realization within any reasonable future—will be considerably lessened. Value estimates based upon some potential use have been too common and have led to too many speculative purchases which have subsequently been registered in tax defaults and broken contracts.

Certainly more data are available now and are constantly being made available than ever before. The Real Property Inventory, the Financial Survey of Urban Housing, and studies like the one under review, together with increasingly accurate analysis of population growth and population movements, should help to fill many long-felt gaps in appraisal technique. The next step is to make this information effective in sounder appraisals and sounder asking prices for real estate.

Not all facts revealed, of course, will be favorable. But it is quite as important to know the weak spots in a local situation as to know the factors which tend to strengthen the market. Clearly, the extent of the debt and tax burdens, as defined by this *Report*, has an important bearing on the market for real property in this area. Properties which have been valued on too optimistic a basis are seen to cause difficulties for local governments and to create an unfavorable attitude toward real estate holding. If a disproportionate share of municipal income has to meet debt requirements—incurred probably in large measure to supply improvements for vacant lots which are not contributing their share to that income—then concern may well be felt as to what may happen to various municipal services which are of vital importance to the owner of real estate.

PUBLIC INTEREST IN THE VALUATION PROCESS

Finally, the *Report* points clearly to a very real public interest in the valuation process. While the primary data of the *Report* are assessed valuations, their relation to appraised values is close. In arriving at taxable values, assessors use market values whenever they are available.[6] Market values, based upon private appraisals, thus exercise a large influence where the comparative method has to be resorted to and especially for vacant properties whose values cannot be ascertained by a capitalization of income.

Some recognition of this public interest in the appraisal process has also been voiced in other connections — notably in connection with appraisals used as the basis for real estate bond issues. The repercussions of unsound appraisals for such purposes have been receiving con-

[6]Market price is regarded as the test of "full value" but because relatively few properties are sold in a given year, "probable market price" has to be resorted to, and this is ascertained (1) from bona fide voluntary sales wherever possible; (2) from appraisals by lending institutions; (3) from estimates based on all available data (pp. 9-10).

siderable attention, and some steps have been taken to remedy the situation. If the Westchester County situation is typical, and apparently it is, it would seem to reveal another angle to the public interest in the appraisal process. Public interest is concerned not only with the safety of investment in security based upon land but also in the soundness of the tax-base and in the foundations of land policies generally.

HELEN C. MONCHOW.
Managing Editor, Journal of
Land & Public Utility Economics,
Northwestern University,
Chicago, Illinois.

Reviews of Recent Books

Simpson, Thomas M., Pirenian, Z. M., and Crenshaw, B. H. MATHEMATICS OF FINANCE. *New York, Prentice-Hall, Inc., 456 p. $3.75.*

MATHEMATICS of Finance" is one of the rare books on the subject of mathematics which can be appreciated by the average business man who has either had a very little technical education or who has left college algebra and more advanced courses in the field of mathematics far behind. The mathematics of finance is not fundamentally different from mathematics in any other field, although some texts on the subject make it appear so. Complex systems of notation sometimes are used to obscure very simple processes, while in other books on business mathematics we find that too much is taken for granted and that the reader is expected to know at least as much and in many cases apparently more about the subject than the authors, themselves, in order to comprehend what it is all about. In still other cases, we find books purporting to treat of business mathematics which are little more than business arithmetics.

The work on review does not fall into any of the above categories. It is well written from both the standpoint of the mathematician and the business man. The fundamental operations are well treated. Explanations are adequate but yet not boring. The attitude of the authors seems to be that of wishing to refresh the reader's mind on certain things rather than to open the gates to a new and profound science. The formulae are stated in such a way that they are easily understandable, and the illustrative problems are taken from practical business operations.

The chapter on logarithms is particularly good, while the treatment of the subject of statistics is inadequate. Chapter VIII, *Elementary Functions and Graphs,* is very good as far as it goes. Perhaps it might be criticized for trying to say too much in too few pages. It is too mathematical and after all doesn't tell the reader much about the problems encountered in business graphics or give him an idea of how they might be solved.

The book would have been more useful if a chapter had been added on trend calculations, but perhaps it is too much to expect that one book should cover the entire field of statistics; nevertheless, information on time series is always appropriate.

Part II of "Mathematics of Finance" is a study of the problems in finance, compound interest, amortization, annuities,

sinking funds, bond valuation, mathematics of depreciation, and a short section on life annuities and life insurance. This section of the book is particularly good, not only because of the text material itself, but also because of the wealth of illustrative material.

Appraisers will miss some of their theories being called by name in the index. Inwood and Hoskold are absent, although if one gains command of the material in Part II, he will miss these only by name.

The book has a very usable set of compound interest and annuity tables as well as logarithms and other factors of use in the mathematics of finance.

The book is avowedly written as a text for a three-hour, one-year course for students in commerce and business administration. It would probably fit a three-hour, one-semester course in a professional school just as well. The problems in the text are generally well chosen, and if half of each list are worked out by the student, he will have gained a ready command of the subject. Answers to the problems given in the text are found in the Appendix. This is a feature which always makes such a book as this useful, not only to the student in school, but also to those in business who are bringing themselves up to date in mathematics.

"Mathematics of Finance" is a book which should find a place in the appraiser's library, particularly upon the book shelves of those appraisers who are not already very proficient in the field. It is not only a book to study, but one which can be used more or less as a manual. "Mathematics of Finance" is one of the few books in the field which is worth the money, not only to study, but to read.

THURSTON H. ROSS, M. A. I.

Los Angeles, California.

September, 1936.

Bemis, Albert Farwell. RATIONAL DESIGN. VOLUME III IN THE EVOLVING HOUSE SERIES. *Cambridge, Mass., The Technology Press, 1936. 625 p. $4.00.*

FOOD and clothing, heat and light, even luxuries, have for some time been successfully furnished the public at low cost and in ample quantity through modern mass production methods. But shelter is still produced in the old-fashioned, hammer-and-saw manner that "dates" the housing industry. For years we have dreamed of the up-to-date house, prefabricated parts of which could be assembled as rhythmically and efficiently as the parts of an automobile. Today we are, at last, on the way to the solution of our prefabrication problem. At least that is the conclusion one draws in reading "Rational Design" by Albert Farwell Bemis.

"Rational Design" is the third volume of Mr. Bemis' trilogy, entitled, "The Evolving House." The first volume concerns itself with the evolution of the home from the crude cave-shelter of primitive man to the still inadequate house of today. Volume II analyzes present housing conditions and trends, comparing the housing industry with other industries. Volume III offers a technical solution to the modern shelter problem, through what the author calls "the cubical modular method." In regard to this method, Mr. Bemis says: "It is a new conception of structural design. It does not change the theory of structure, but proposes to change the making, assembling, and erecting of houses. Its processes are not limited to this or that material, but, being based upon rectangularity and the cube, they can be adapted to the widest variety of substances. . . The modular

house does not mean a house of one elevation and plan, or a choice of four or five plans. Modular design means all plans and any plans. It means no one size for all housing, but housing of every size and for every group—apartments, clubhouses, bungalows, mansions, small city dwellings and huge country houses, farm houses, hospitals. It is a means of providing houses harmonious in appearance, rational in design, logical and integral in structure."

The cubical modular method is not entirely new; it has been patented in twenty-eight countries, including the United States, Great Britain, Germany, and France.

To help clarify his necessarily technical explanation of rational design, the author has used 110 illustrations in his 600-page book.

The volume is divided into eleven parts: I. Efforts toward Rational Housing; II. What Is Rationalization?; III. Mass Production and the House; IV. Standardization for House Parts; V. The Cube as a Module; VI. The Theory of Cubical Modular Design; VII. Applied Cubical Modular Design; VIII. The Cubical Module in Architectural Design; IX. Rational Production; X. Patents and the Cubical Modular Method; XI. Social Significance of the Cubical Modular Method.

Besides Mr. Bemis' own foreword and preface, "Rational Design" contains an introduction by A. Lawrence Kocher, Managing Editor of *The Architectural Record*, and a supplement by John Burchard, 2nd. The supplement consists of some 250 pages. It is a survey of efforts to modernize housing structure.

The book is a posthumous edition. Mr. Bemis died in April of this year just at the time the publication of this volume had proceeded to the point of binding.

ROWENA BASTIN BENNETT.

Chicago, Illinois.
September, 1936.

New Articles

"Inflation 'Hedging' to Preserve Values," by Dr. Walter S. Landis.

"In the March issue of *Trust Companies* was published an article by Dr. Landis entitled 'Inflation and Equity Investments,' which presented the factual results of an intensive, first-hand study of the effects of European inflation on various types of securities. The existence of inflationary tendencies in this country makes the subject of timely importance and, in view of recent statements that there are no effective hedges against inflation, this discussion of effective 'hedging' should be of intense practical interest to those charged with investment responsibilities." *Trust Companies, June 1936, p. 587-590, $0.80.*

* * *

"The Science of Appraising in the Coming Real Estate Boom," by Stanley L. McMichael.

Mr. McMichael, M. A. I., of Los Angeles, and the author of several valuable text books on real estate appraising and city growth, drives home the importance of appraising carefully all listings which come into the broker's office. The price set by the owner is of little importance. Much more useful is a full list of data about the property, including its age, area, quality, and rent-bearing capacity. When a complete factual story of the

property is marshalled before the owner, the present-day warranted value is easily computed and a reasonable price established. "If he is still obdurate," says Mr. McMichael, "I simply wash my hands of him and go on to other owners who are more reasonable." Of especial interest to broker-appraisers. *National Real Estate Journal. September, 1936, p. 34-36, $0.70.*

* * *

"Exclusivity Makes Land Values," by W. Burke Harmon.

An elaboration of that peculiar characteristic of land which distinguishes it from other commodities — namely, the absence of identical units. Exclusivity is one of the important factors governing the price of real estate. There are two main types of exclusivity, natural and artificial, although we have illustrations of mixed types. Exclusivity may take the form of site, of historical background, of neighbors, or it may depend upon many other influences. *Real Estate. August 15, 1936, p. 9-10. $0.30.*

* * *

"A Basis for the Valuation of Marine-View Residence Sites," by George J. Eberle.

A new basis of comparative appraisal of high class, marine-view, residential subdivisions being applied in actual practice in the Los Angeles area. The survey is based upon ten subdivisions in existence ten years or more and from ten to fifty per cent occupied today, with active building of new homes taking place in most of them. The attributes which should be considered when purchasing a lot are first classified into seven factors. Each factor is then given points, or weights. The next step is to convert asking prices to a standard unit price. The final computation gives an estimate of the attributes which the buyer will receive for each dollar of his purchase price. Recommended to all appraisers. *Journal of Land & Public Utility Economics. August, 1936, p. 274-279. $1.25.*

* * *

"Obsolescence Destroys Value," by Edward V. Walsh.

Intrinsic obsolescence and extrinsic obsolescence are discussed at length in this article by the Assistant District Appraiser for the H. O. L. C. in Chicago. Mr. Walsh has accumulated some 3,000 photographs of case examples in the course of his work in the Chicago area and has given special study to this important problem. *Real Estate. August 29, 1936, p. 7. $0.30.*

* * *

"Increased Mortgage Investment Shown."

The first indication of a reversal in the downward trend of the mortgage investments of life insurance companies came recently from one of the largest concerns. Within the last two months sufficient loans have been placed to absorb receipts from pay-offs of old loans plus cash received from the sale of real estate. This company is one of the first to reflect the improvement in the position of real estate. Figures are given on the adjustments made in the holdings of life insurance companies from 1929 to the end of 1935. *The Economist. September 5, 1936, p. 17. $0.35.*

* * *

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(See pages 453 to 457, Roster of Members, for addresses.)

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M. C. O'Brien (190).....798 Nostrand Ave.
Charles Partridge (92).....397 Flatbush Ave.
Lewis H. Pounds (128).....32 Court St.
Fenwick B. Small (31).....1124 Myrtle Ave.
R. W. Walden (89).....162 Remsen St.

Manhattan

Edward J. Crawford (373).....225 Broadway
Sam W. Florence (206)....2700 Woolworth Bldg.
Howard Geoghegan (512).....51 Chambers St.
Dalton Granger De Witt (315)..22 W. 48th St.
A. N. Gitterman (45).....45 E. 49th St.
Bracton Goldstone (68).....10 E. 40th St.
Frank D. Hall (159).....393 7th Ave.
John R. Hoyt (290).....17 E. 42nd St.
Robert Huntley (214).....67 Liberty St.
S. E. Kazdin (269).....70 Pine St.
John J. McCormick (445).....51 Chambers St.
Clarence C. Merriott (357).....50 E. 42nd St.
James R. Murphy (437).....217 Broadway
Henry Musch, Jr. (157)..330 W. 42nd St., c/o HOLC
Charles A. Nehring (521)..1441 St. Nicholas Ave.
Irving I. Rosenbaum (179).....384 Broadway
I. Lincoln Seide (526).....220 Broadway
David Vogel (368).....150 Broadway

Nassau County

Richard T. Childs (273)....222 Front St., Mineola

Queens County

Armand Brunswick (327).....90-26 161st St., Jamaica
William F. MacDermott (198).....89-70 162nd St., Jamaica
Axel J. Swenson (272).....41-27 29th St., Long Island City

Westchester County

Robert A. Anderson (259).34 E. 1st St., Mt. Vernon
Stephen L. Angell (220).30 E. Parkway, Scarsdale
Vernon N. Bailey (322).162 Main St., White Plains
Edward C. Heald (222)..20 S. Broadway, Yonkers
Edward H. Hufnagel (250).....10 Fourth Ave., Mt. Vernon
Albert W. Lockyer (294).....Depot Plaza, White Plains
Paul Wegener (90).....114 Broadway, Yonkers
Edward M. West (305).....1 Martine Ave., White Plains

Rochester
Abraham Berghash (219)....130 Clinton Ave., S.

Schenectady
Wm. Garner Bee (415).....277 State St.

Syracuse
James H. Dawley (333).....121 E. Genesee St.
Edward Eagan (271).204 Starrett-Syracuse Bldg.

NORTH CAROLINA

Asheville
B. H. Sumner (332).....Asheville

Charlotte
S. T. Henderson (20).....P. O. Box 1128

OHIO

Akron
John C. Kyle (102).....520 S. Firestone Blvd.
Fred E. Smith (298)).....608 Broad Blvd., Cuyahoga Falls
W. F. Voges (105).....1109 S. Main St.

Alliance
L. D. Scranton (100).....341 E. Main St.

Canton
Mark Hambleton (146).....417 Mellett Bldg.
A. Ray Walters (439).....524 Renkert Bldg.

Cincinnati
Howard R. Burgess (176).....104 Neave Bldg.
Fred Droege, Jr. (154).....104 Neave Bldg.
J. George Ege (335).....3040 Urwiler Ave.
James W. Farrell (149)....S. W. Cor. 5th & Main
John H. Frey (156).....7 Navara Apts., Sta. D
James J. Grogan (180).S. W. Cor. 5th & Main Sts.
Albert J. Mayer (204)....1515 1st Natl. Bk. Bldg.
P. Lincoln Mitchell (181).....S. W. Cor. 5th & Main Sts.
C. Stott Noble (202).....3428 Slettenius
Michael J. O'Byrne (429).....4th and Vine St.
Russell Price (152)..S. W. Cor. 5th & Main Sts.
Walter S. Schmidt (111).S. W. Cor. 5th & Main Sts.
Lewis R. Smith (139).....409 American Bldg.
John B. Spilker (155).....104 Neave Bldg.
L. F. Steele (310).....209 W. 7th St.

Cleveland
Talmage D. Auble (262).....15509 Madison Ave.
Robert F. Berwald (300)..1220 Williamson Bldg.
Ben B. Beyer (34).....1425 Williamson Bldg.
James G. Bingham (328)..1227 Williamson Bldg.
Raymond T. Cragin (282).825 Natl. City Bk. Bldg.
W. J. Crawford, Jr. (323)...720 Cuyahoga Bldg.
Victor J. Free (431).....1105 Chester Ave.
Walter R. Granger (285)..310 Hippodrome Bldg.
Joseph J. Haas (164).....200 Marshall Bldg.
Joseph Laronge (103) .....600 Union Trust Bldg.
Edwin H. McIntosh (283).....1029 Society for Savings Bldg.
Warren L. Morris (251)..420 Natl. City Bk. Bldg.
E. L. Ostendorf (14)...610 Natl. City Bank Bldg.
Carl A. Palmer (286).....850 Euclid Ave.
Max J. Rudolph (281).....1105 Chester Ave.
Carlton Schultz (37).....1223 Schofield Bldg.
Alexander S. Taylor (142)....1930 Union Tr. Bldg.
V. C. Taylor, II (153)....1930 Union Trust Bldg.
Wm. J. Van Aken (284).....1715 Euclid Ave.

Columbus
Charles F. Johnson (412).....8 E. Long St.

Dayton
Rufus Lisle (438).....Winters Bank Bldg.

Geneva
J. Earl Miller (267).....Miller Bldg.

Massillon
Charles N. Hostetter (329)..716 Lincoln Way, E.

Springfield
H. S. Kissell (5).....927 1st Natl. Bk. Bldg.

Toledo
Claude A. Campbell (211)...707 Ohio Bank Bldg.
Edmund T. Collins (522).....145 Superior St.
Geo. P. Crosby (252).....413 Madison Ave.
Howard Etchen (136).....725 Adams St.
Donald F. Hiett (396).....622 Jefferson Ave.
John R. Schackne (529).....507 Produce Exchange Bldg.

OKLAHOMA

Tulsa
Clyde A. King (432).....310 Beacon Bldg.

OREGON

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Carl G. Wright (361).....204 Marine Bank Bldg.

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Evan J. Miller (148).....213 Locust St.

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Richard J. Seltzer (255).....15th & Locust Sts.
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Richard A. Hurley (513).723 Hospital Trust Bldg.

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J. Guthrie Smith (144).....5104 Riverside Drive
Morton G. Thalhimer (221).....1013 E. Main St.

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Edwin G. Wendland (342)..845 Bellevue Ave., N.

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.....Box 1019, Charleston Natl. Bk. Bldg.

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Edward Ross McCory, M. A. I., Spokane, Washington. Admitted October, 1935; Died March, 1936.
Wm. J. Uebelhart, M. A. I., Canton, Ohio. Admitted July, 1932; Died August 24, 1936.
T. O'J. Wilson, M. A. I., Bluefield, West Virginia, President of the West Virginia Real Estate Association. Admitted June, 1934; Died August 10, 1936.

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